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ABSTRACT

Mathematics and the use of mathematical thinking should be much more than what has been traditional school arithmetic. Much of the mathematical reasoning can be developed and experienced out of school, particularly in the home. This material contains recording forms and worksheets for activities for the Level Four experiences. Pupils are to complete these as part of their learning experiences. Forms and worksheets are included for all of the concepts and skills of the Level Four program. (YP)

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MEANINGFUL MATHEMATICS

LEVEL FOUR

RECORDING FORMS
AND
WORKSHEETS FOR PUPIL USE

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SE051 195

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Mathematician:____

"I wrote problems using these numbers. The circled number answers the question in each problem."

NUMBERS GIVEN	MY PROBLEM

Mathematician:____

"I wrote a 'story' problem for each open number sentence."

NUMBER SENTENCE	STORY PROBLEM

MATHEMATICIAN: ____________________

"I put an X on all numbers which are multiples of 4
I put a circle around all numbers which are multiples
of 5 I drew a line through four circles or
four X's that are in a row."

10	11	12	13
14	15	16	17
18	19	20	21
22	23	24	25

MATHEMATICIAN:______________________________

"I put an X on all numbers which are multiples of 2
I put a circle around all numbers which are multiples
of 3 I drew a line through four circles or
four X's that are in a row."

4	5	6	7
8	9	10	11
12	13	14	15
16	17	18	19

MATHEMATICIAN: ____________________

"I put an X on all numbers which are multiples of 2
I put a circle around all numbers which are multiples
of 3 I drew a line through four circles or
four X's that are in a row."

20	21	22	23
24	25	26	27
28	29	30	31
32	33	34	35

MATHEMATICIAN: ______________________________

"I put an X on all numbers which are multiples of ___4___.
I put a circle around all numbers which are multiples of ___5___ I drew a line through four circles or four X's that are in a row."

26	27	28	29
30	31	32	33
34	35	36	37
38	39	40	41

MATHEMATICIAN: ______________________________

"I completed the addition table in __________ minutes."

+	5	2	6	0	7	4	8	3	1	9
4										
0										
6										
1										
8										
9										
2										
7										
3										
5										

MATHEMATICIAN: ______________________________

"I completed the addition table in __________ minutes."

+	0	9	2	3	1	6	8	5	4	7
9										
5										
2										
0										
3										
4										
7										
1										
8										
6										

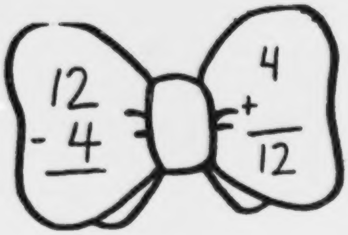
MATHEMATICIAN: ____

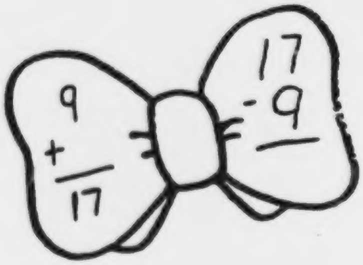
"I completed the addition table in __________ minutes."

+	2	3	4	7	6	1	8	5	9	0
7										
0										
1										
9										
3										
8										
5										
6										
4										
2										

MATHEMATICIAN:____

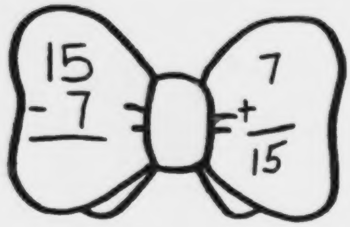
"I used the addition facts to subtract."

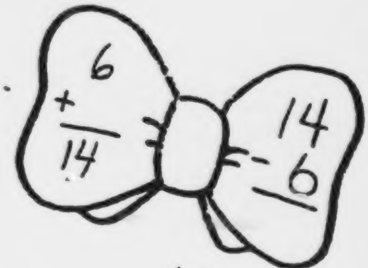


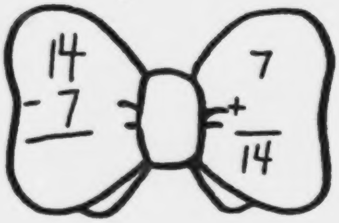


11
- 3
___

12
- 6
___

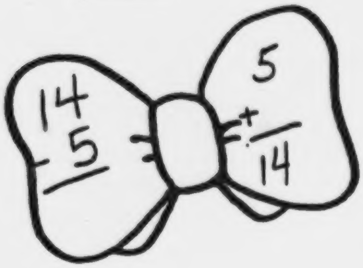






14
- 7
___

13
- 5
___



16
- 8
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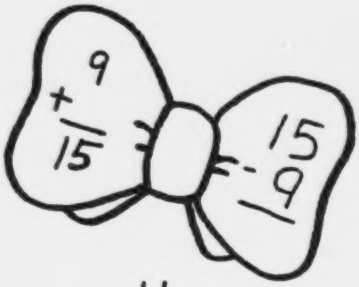
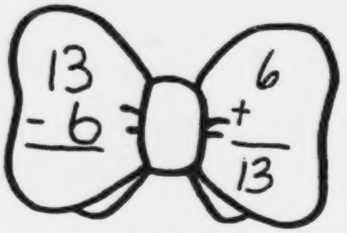
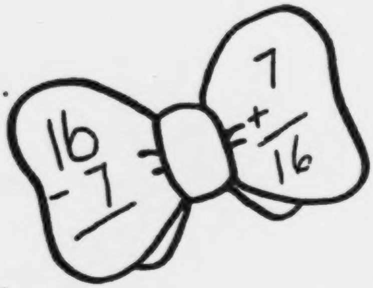


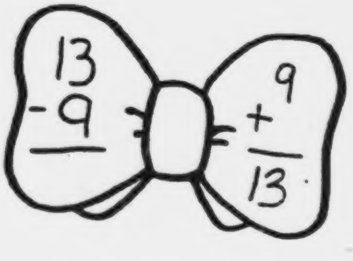


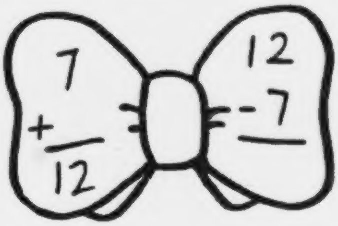
11
- 5
___

11
- 9
___



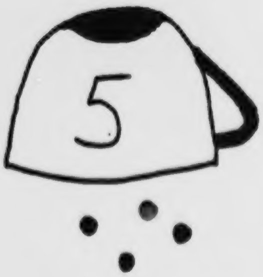
12
- 9
___





MATHEMATICIAN: ____________________

"I wrote how many were still in the cup."



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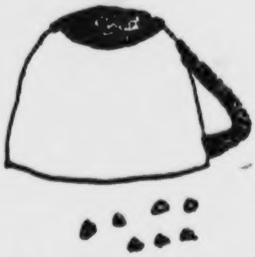

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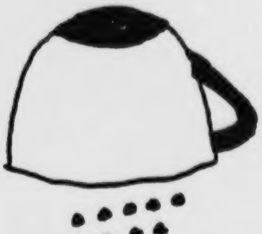

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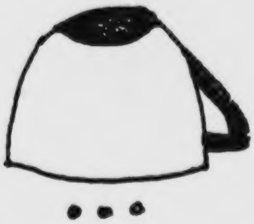

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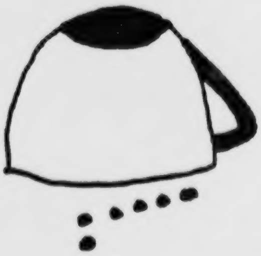

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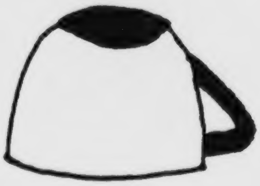

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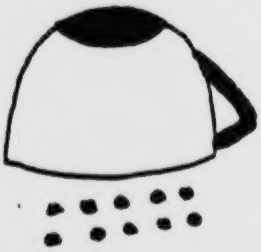

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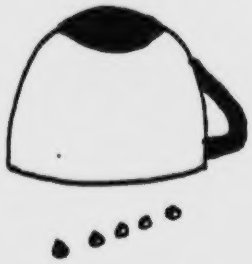

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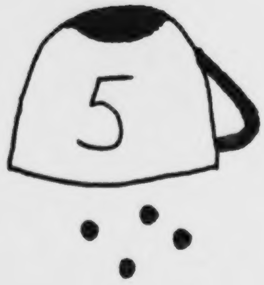
MATHEMATICIAN: ______________________________

"I wrote how many were still in the cup."



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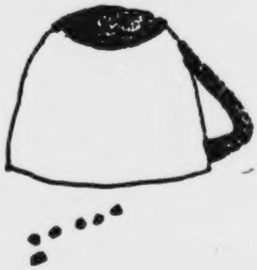

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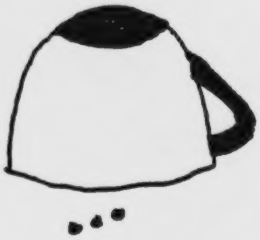

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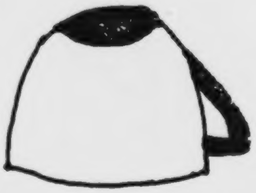

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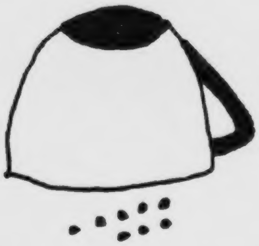

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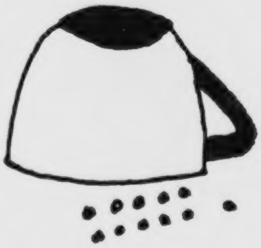

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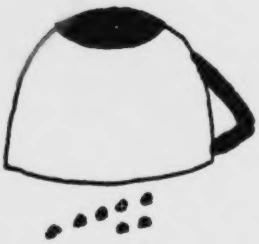

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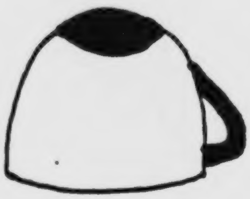

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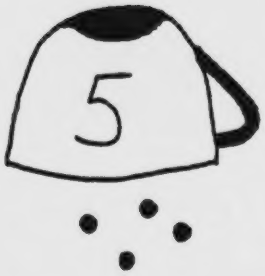
MATHEMATICIAN: ____________________

"I wrote how many were still in the cup."



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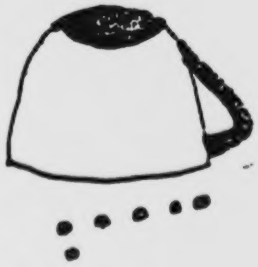

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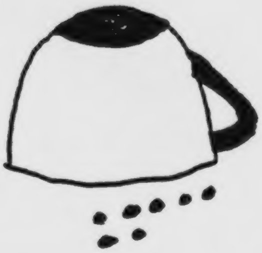

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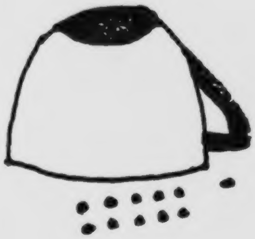

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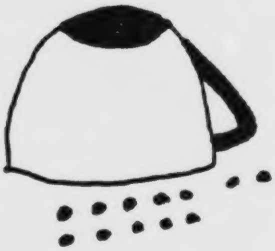

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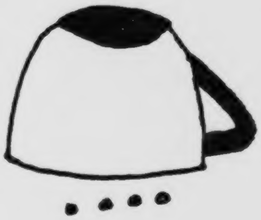

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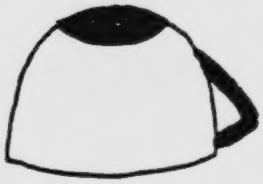

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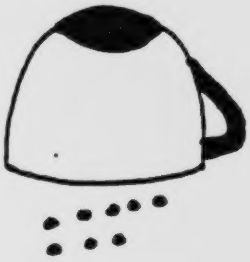
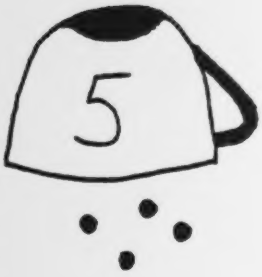


14

MATHEMATICIAN: ____________________

"I wrote how many were still in the cup."



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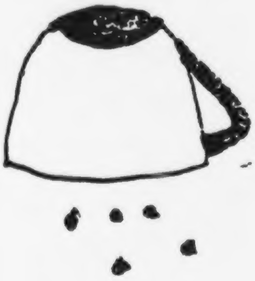

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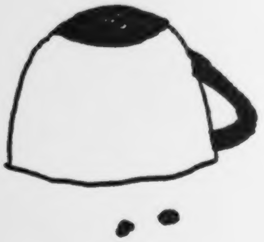

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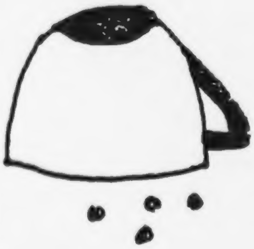

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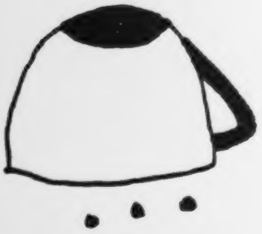

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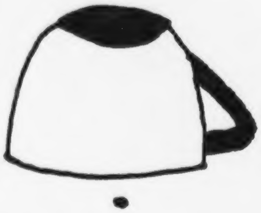

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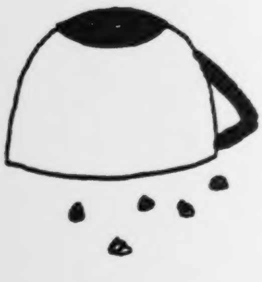

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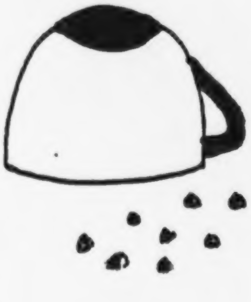

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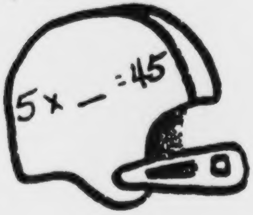
MATHEMATICIAN: ______________________________

"I found multiplication facts and then also found related division facts."

$49 \div 7 =$

$7 \times \_\_ = 49$

$45 \div 5 =$

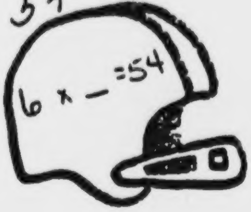


$5 \times \_\_ = 45$

$32 \div 8 =$

$8 \times \_\_ = 32$

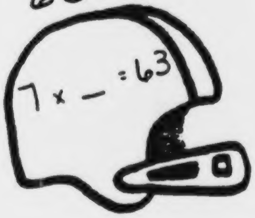
$54 \div 6 =$



$6 \times \_\_ = 54$

$24 \div 6 = \_\_\_$

$63 \div 7 =$



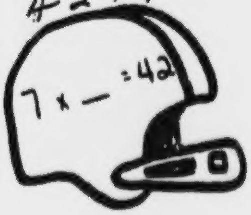
$7 \times \_\_ = 63$

$12 \div 3 = \_\_\_$

$72 \div 9 =$

$9 \times \_\_ = 72$

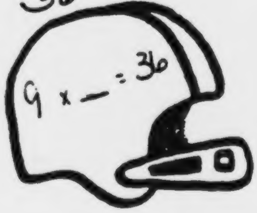
$42 \div 7 =$



$7 \times \_\_ = 42$

$16 \div 8 = \_\_\_$

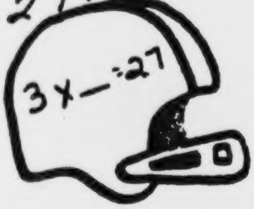
$36 \div 9 =$



$9 \times \_\_ = 36$

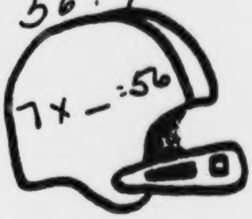
$18 \div 6 = \_\_\_$

$27 \div 3 =$



$3 \times \_\_ = 27$

$56 \div 7 =$



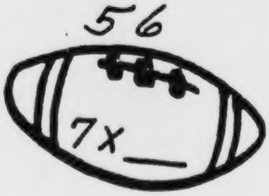
$7 \times \_\_ = 56$

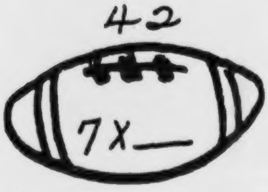
$64 \div 8 = \_\_\_$

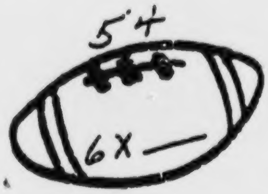
$0 \div 6 = \_\_\_$

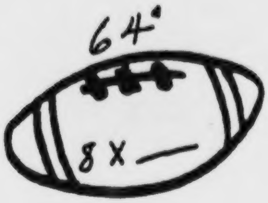
MATHEMATICIAN: ______________________________

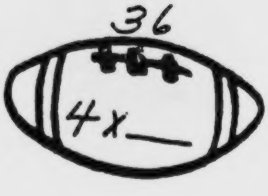
"I supplied the missing factors."

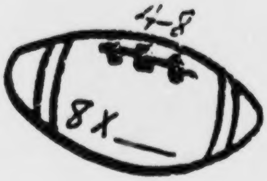


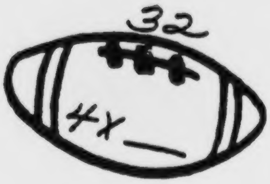


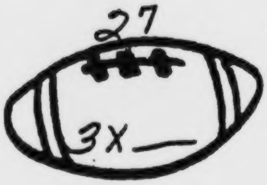


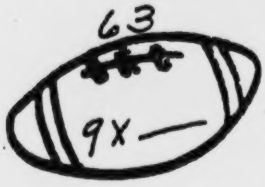


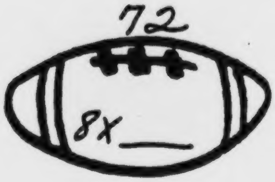


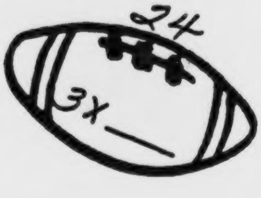


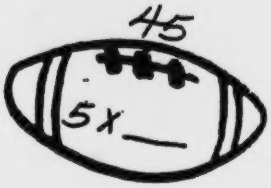


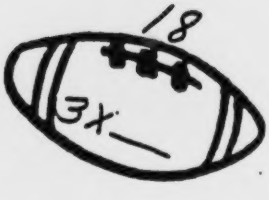


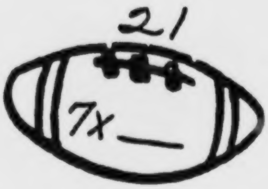


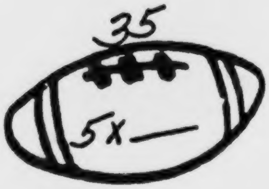












Mathematician: ____________________

"I thought about these and put a number in the □ to make a true sentence."

3 + □ = 5 + 2

7 = □ + 3

□ = 14 - 6

8 = 12 - □

6 + 3 = □ + 2

3 + □ = 6 - 2

7 + 3 = 4 + □

□ + 1 = 3 + 5

□ - 2 = 2 + 3

□ = 6 + 3

4 + 5 = □

6 + 4 = □ + 3

□ + 2 = 7 + 3

4 + □ = 10

3 + □ = 4 + 6

2 + □ = 9

3 = 9 - □

10 - □ = 4

9 - □ = 3 + 2

5 = □ - 3

□ + 2 = 4 + 4

6 + □ = 3 + 7

5 + 3 = □ + 2

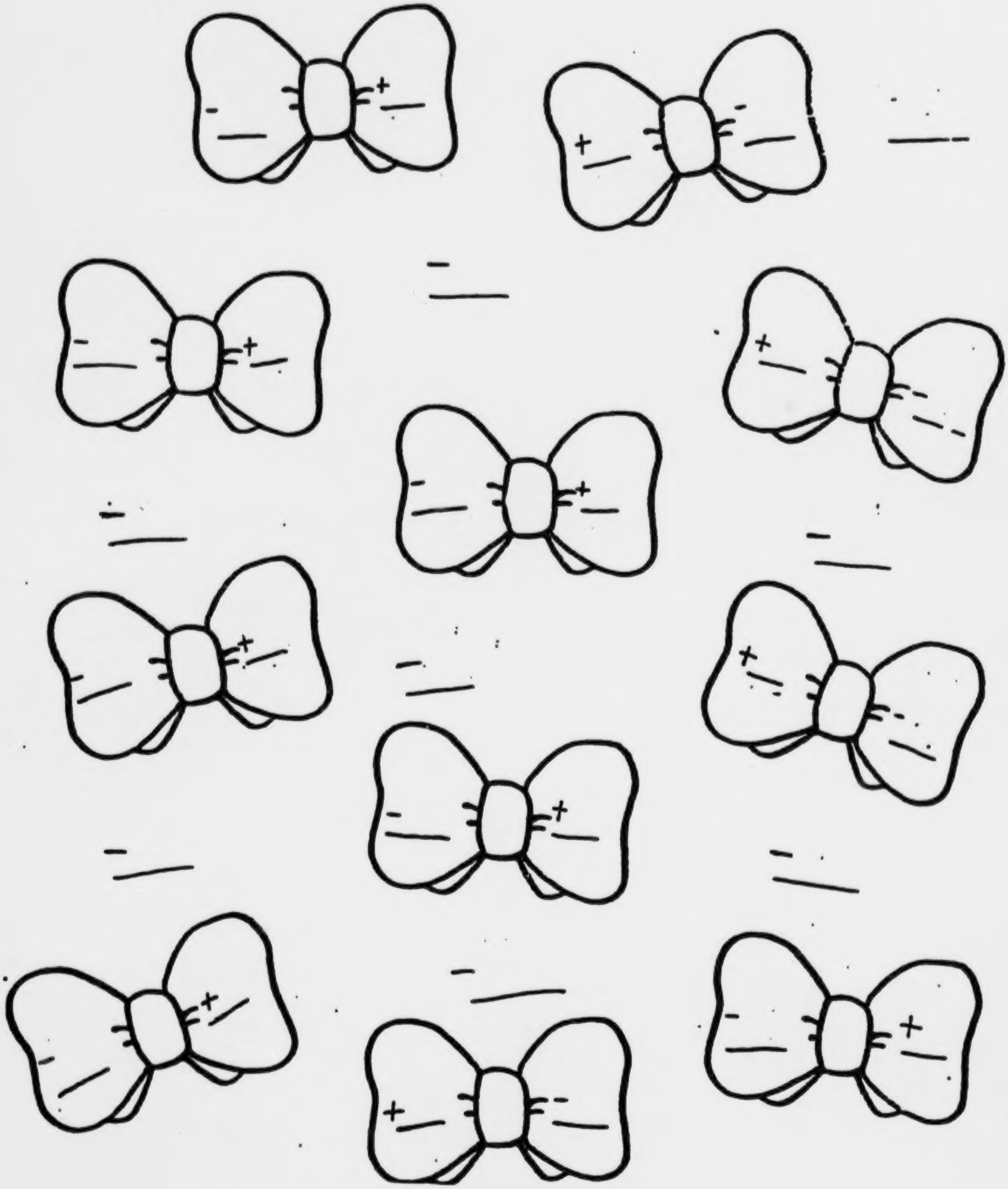
4 + 3 = □ + 5

12 - □ = 4 + 5

10 = □ + 1

MATHEMATICIAN:________________________________

"I used the addition fact given to subtract."



MATHEMATICIAN: ______________________________

"I completed the addition table in __________ minutes."

+	5	8	4	9	2	6	3	1	0	7
2										
6										
5										
0										
8										
1										
3										
4										
7										
9										

MATHEMATICIAN: ______________________________

"I did these multiplications in ____________ minutes."

5 x 0	2 x 6	8 x 5	1 x 9	0 x 2	1 x 3	9 x 9	4 x 2	5 x 3	6 x 0
0 x 1	4 x 5	3 x 1	4 x 9	4 x 0	9 x 8	0 x 5	9 x 2	1 x 1	2 x 5
9 x 3	1 x 7	8 x 2	0 x 3	2 x 2	8 x 0	5 x 9	2 x 7	7 x 0	1 x 8
5 x 1	6 x 2	9 x 7	1 x 0	9 x 1	0 x 8	2 x 9	0 x 4	5 x 6	1 x 2
0 x 7	3 x 2	6 x 5	1 x 4	3 x 0	6 x 1	5 x 4	6 x 9	0 x 9	7 x 1
2 x 0	2 x 1	3 x 5	0 x 6	5 x 5	3 x 9	2 x 4	7 x 5	8 x 1	9 x 5
5 x 8	7 x 9	5 x 2	9 x 0	4 x 1	9 x 6	2 x 8	5 x 7	7 x 2	1 x 6
0 x 0	9 x 4	2 x 3	8 x 9	1 x 5	6 x 6	4 x 3	8 x 7	3 x 7	8 x 6
7 x 3	4 x 4	4 x 8	6 x 7	8 x 8	8 x 3	7 x 4	3 x 6	7 x 7	6 x 8
4 x 6	7 x 6	3 x 3	8 x 4	3 x 4	6 x 3	4 x 7	7 x 8	6 x 4	3 x 8

MATHEMATICIAN: ____

"I finished these divisions in __________ minutes."

0 ÷ 5 =
15 ÷ 5 =
36 ÷ 4 =
10 ÷ 2 =
0 ÷ 8 =
12 ÷ 2 =
18 ÷ 2 =
4 ÷ 1 =
7 ÷ 7 =
27 ÷ 3 =
40 ÷ 5 =
4 ÷ 4 =
6 ÷ 1 =
5 ÷ 1 =
16 ÷ 4 =
28 ÷ 7 =
42 ÷ 7 =
28 ÷ 4 =

12 ÷ 2 =
0 ÷ 6 =
0 ÷ 4 =
27 ÷ 9 =
45 ÷ 5 =
63 ÷ 9 =
30 ÷ 5 =
0 ÷ 3 =
0 ÷ 2 =
8 ÷ 4 =
63 ÷ 7 =
54 ÷ 9 =
48 ÷ 8 =
36 ÷ 6 =
32 ÷ 4 =
18 ÷ 3 =
9 ÷ 3 =
56 ÷ 7 =

40 ÷ 8 =
3 ÷ 1 =
72 ÷ 9 =
7 ÷ 1 =
14 ÷ 2 =
5 ÷ 5 =
2 ÷ 1 =
6 ÷ 6 =
2 ÷ 2 =
35 ÷ 7 =
10 ÷ 5 =
16 ÷ 2 =
36 ÷ 9 =
12 ÷ 4 =
42 ÷ 6 =
49 ÷ 7 =
32 ÷ 8 =
24 ÷ 1 =

9 ÷ 1 =
20 ÷ 4 =
18 ÷ 9 =
16 ÷ 8 =
0 ÷ 7 =
0 ÷ 1 =
6 ÷ 3 =
20 ÷ 5 =
15 ÷ 3 =
8 ÷ 8 =
0 ÷ 9 =
35 ÷ 5 =
6 ÷ 2 =
56 ÷ 8 =
64 ÷ 8 =
48 ÷ 6 =
12 ÷ 3 =
18 ÷ 3 =

8 ÷ 2 =
3 ÷ 3 =
1 ÷ 1 =
4 ÷ 2 =
8 ÷ 1 =
9 ÷ 9 =
30 ÷ 6 =
54 ÷ 6 =
25 ÷ 5 =
45 ÷ 9 =
21 ÷ 7 =
14 ÷ 7 =
72 ÷ 8 =
21 ÷ 3 =
24 ÷ 8 =
24 ÷ 4 =
18 ÷ 6 =
81 ÷ 9 =

MATHEMATICIAN: ______________________________

"I finished finding these answers in ____________ minutes."

5 - 0	7 - 2	4 - 1	9 - 0	6 - 1	3 - 2	1 - 1	2 - 0	8 - 2	9 - 1
6 - 2	7 - 0	10 - 1	2 - 1	3 - 0	4 - 2	8 - 1	9 - 2	5 - 1	6 - 0
11 - 2	4 - 0	3 - 1	8 - 0	7 - 1	1 - 0	5 - 2	0 - 0	10 - 2	1 - 1
8 - 7	9 - 9	11 - 8	5 - 4	7 - 5	6 - 6	9 - 8	7 - 4	8 - 8	10 - 9
9 - 7	5 - 3	5 - 5	8 - 6	4 - 3	6 - 4	3 - 3	12 - 9	4 - 4	6 - 3
6 - 5	10 - 8	9 - 6	2 - 2	7 - 6	11 - 9	7 - 7	10 - 7	8 - 5	7 - 3
13 - 6	12 - 8	11 - 3	17 - 8	12 - 5	10 - 6	14 - 5	9 - 3	16 - 8	11 - 4
18 - 9	10 - 3	12 - 6	15 - 9	13 - 8	12 - 3	9 - 5	14 - 6	13 - 4	11 - 6
12 - 7	8 - 4	16 - 9	13 - 7	12 - 4	15 - 7	11 - 5	14 - 9	16 - 7	10 - 4
9 - 4	15 - 8	13 - 5	15 - 6	14 - 7	13 - 9	10 - 5	17 - 9	14 - 8	11 - 7

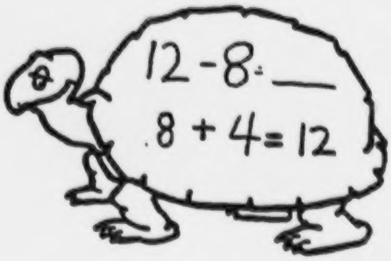
MATHEMATICIAN: ______________________________

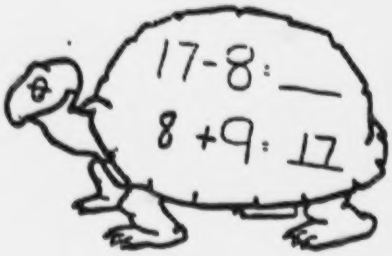
"I put the missing factors in the ☐ 's."

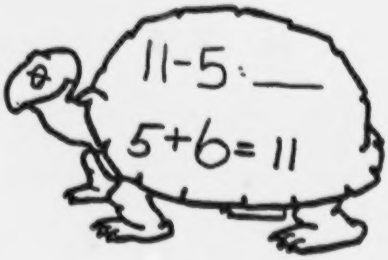
☐ × 6 = 48	☐ × 5 = 40	☐ = 5×6
9 × ☐ = 63	☐ × 3 = 18	9 × ☐ = 36
☐ = 7×8	☐ = 3×5	☐ × 9 = 27
4×6 = ☐	7×7 = ☐	☐ = 5×7
5×8 = ☐	☐ × 8 = 32	4×9 = ☐
6 × ☐ = 54	☐ × 6 = 42	☐ = 3×7
☐ × 9 = 36	☐ = 7×5	☐ × 8 = 48
☐ = 4×7	☐ = 4×3	☐ × 6 = 36
☐ × 3 = 24	7×0 = ☐	☐ = 4×4
4×8 = ☐	☐ = 10×4	7 × ☐ = 49
☐ × 8 = 56	6 × ☐ = 60	☐ × 9 = 81

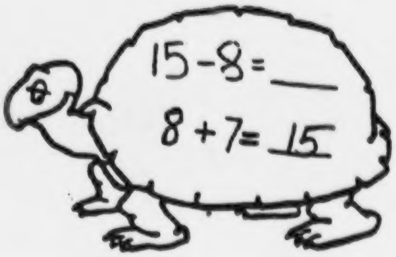
MATHEMATICIAN: ____

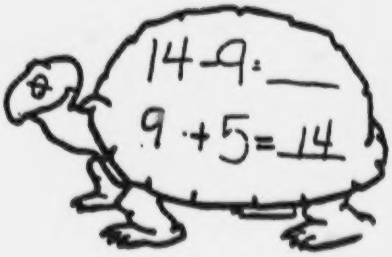
"I used the addition facts given to subtract."

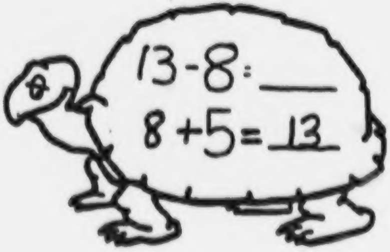

12-8=___
8+4=12

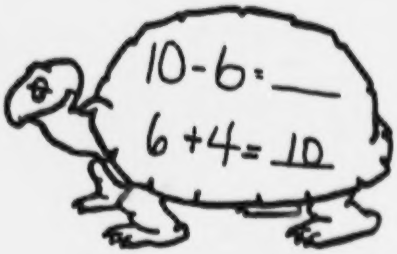

17-8=___
8+9=17

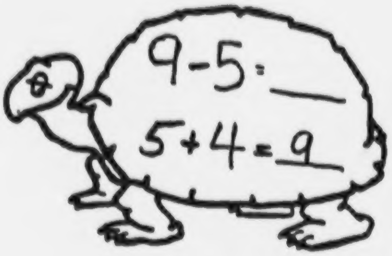

11-5=___
5+6=11

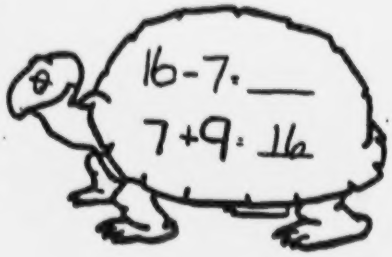

15-8=___
8+7=15


14-9=___
9+5=14


13-8=___
8+5=13

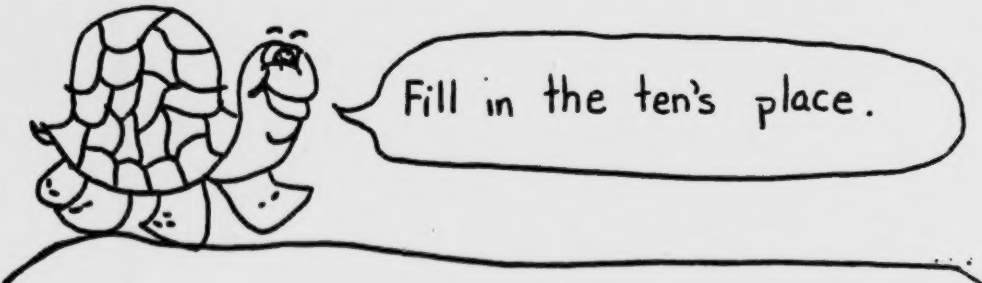

10-6=___
6+4=10


9-5=___
5+4=9


16-7=___
7+9=16

MATHEMATICIAN: ____

"I followed the Turtle"s instructions."


Fill in the ten's place.

$\underline{6}\times 9 = \underline{\quad}4$

$9\times\underline{3} = \underline{\quad}7$

$9\times\underline{5} = \underline{\quad}5$

$\underline{7}\times 9 = \underline{\quad}3$

$9\times\underline{4} = \underline{\quad}6$

$\underline{2}\times 9 = \underline{\quad}8$

$\underline{4}\times 9 = \underline{\quad}6$

$9\times\underline{8} = \underline{\quad}2$

$9\times\underline{7} = \underline{\quad}3$

$9\times\underline{9} = \underline{\quad}1$

5×9 = ☐5

3×9 = ☐7

9×2 = ☐8

9×9 = ☐1

7×9 = ☐3

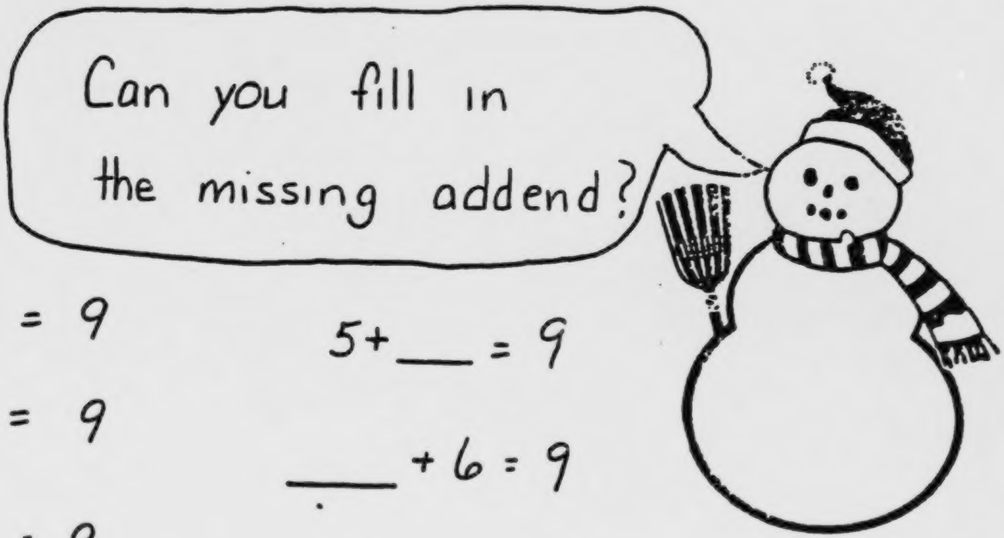
9×6 = ☐4

8×9 = ☐2

4×9 = ☐6

MATHEMATICIAN:____

"I followed the Snowman's instructions."


Can you fill in the missing addend?

3+ ___ = 9

___ + 2 = 9

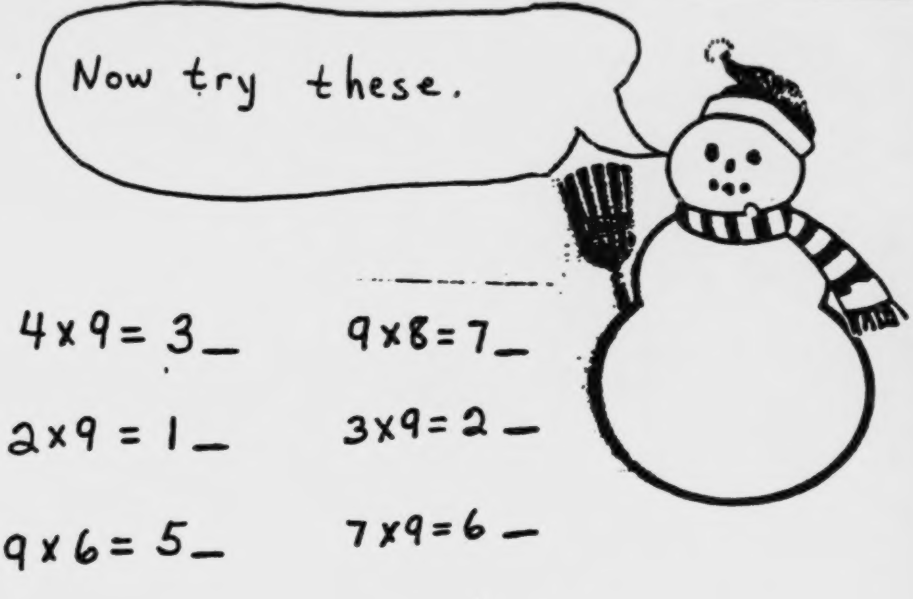
7 + ___ = 9

___ + 8 = 9

5+ ___ = 9

___ + 6 = 9

1 + ___ = 9


Now try these.

6x9 = 5_

9x9 = 8_

9x7 = 6_

5x9 = 4_

9x3 = 2_

8x9 = 7_

4x9 = 3_

2x9 = 1_

9x6 = 5_

9x5 = 4_

9x9 = 8_

9x8 = 7_

3x9 = 2_

7x9 = 6_

9x4 = 3_

9x2 = 1_

MATHEMATICIAN:______________________________

"I finished finding these answers in __________ minutes."

7 + 1	0 + 5	6 + 2	1 + 3	9 + 0	2 + 3	2 + 1	5 + 3	3 + 8	0 + 2
1 + 9	3 + 1	0 + 8	2 + 6	8 + 3	4 + 1	5 + 0	3 + 2	9 + 1	1 + 0
4 + 2	3 + 0	1 + 4	2 + 5	8 + 1	4 + 3	5 + 1	8 + 0	2 + 7	9 + 3
1 + 6	1 + 1	3 + 5	1 + 7	2 + 0	8 + 2	1 + 2	0 + 3	1 + 5	3 + 4
6 + 0	0 + 1	7 + 2	6 + 3	0 + 9	1 + 8	0 + 0	2 + 4	0 + 7	9 + 2
4 + 0	3 + 9	2 + 8	3 + 3	3 + 7	0 + 6	3 + 6	6 + 1	5 + 2	7 + 0
7 + 3	0 + 4	2 + 2	2 + 9	6 + 7	8 + 4	8 + 9	5 + 7	6 + 4	5 + 9
8 + 8	4 + 7	9 + 9	6 + 6	9 + 6	8 + 5	5 + 4	6 + 8	4 + 9	6 + 5
7 + 5	4 + 4	9 + 7	7 + 6	4 + 8	7 + 8	5 + 6	9 + 5	7 + 9	4 + 6
4 + 5	8 + 7	5 + 8	6 + 9	7 + 7	9 + 4	5 + 5	9 + 8	8 + 6	7 + 4

MATHEMATICIAN: ______________________________

"I made numbers several ways."

MAKING MORE NUMBERS

make 12

9 + ____
6 + ____
3 + ____

make 16

9 + ____
7 + ____
8 + ____

make 13

6 + ____
4 + ____
7 + ____

make 15

7 + ____
9 + ____
8 + ____

make 18

9 + ____
10 + ____
8 + ____

make 11

1 + ____
9 + ____
6 + ____

make 14

6 + ____
4 + ____
8 + ____

make 17

8 + ____
9 + ____
10 + ____

make 14

7 + ____
8 + ____
9 + ____

MATHEMATICIAN: ______________________________

"I added or subtracted to put the right number in the ○."

1 + 4 = ○

2 + 3 = ○

3 + 4 = ○

○ = 3 + 5

○ = 4 + 6

2 + 3 = ○ + 4

7 + 2 = 5 + ○

8 + 1 = 3 + ○

6 + ○ = 5 + 5

7 - ○ = 2 + 1

9 - ○ = 3 + 2

○ = 8 - 5

10 + 3 = 6 + ○

○ + 5 = 8 + 7

3 + 4 = 9 - ○

9 - 2 = ○

5 + 6 = ○ - 1

3 + 2 = ○

○ = 8 - 3

○ = 9 + 3

8 + 5 = ○

7 + 2 = 4 + ○

8 + 2 = ○ - 2

○ - 3 = 7 + 9

○ - 1 = 8 + 3

6 + 4 = 7 + ○

5 - 2 = ○ + 1

12 - 3 = ○ + 4

$\begin{array}{r}1\\+4\\\hline\end{array}$

$\begin{array}{r}2\\+3\\\hline\end{array}$

$\begin{array}{r}3\\+5\\\hline\end{array}$

$\begin{array}{r}7\\+2\\\hline\end{array}$

$\begin{array}{r}9\\-3\\\hline\end{array}$

$\begin{array}{r}8\\-2\\\hline\end{array}$

$\begin{array}{r}9\\-2\\\hline\end{array}$

$\begin{array}{r}8\\-3\\\hline\end{array}$

$\begin{array}{r}7\\+6\\\hline\end{array}$

$\begin{array}{r}8\\+5\\\hline\end{array}$

$\begin{array}{r}9\\+7\\\hline\end{array}$

$\begin{array}{r}8\\+6\\\hline\end{array}$

$\begin{array}{r}7\\+9\\\hline\end{array}$

$\begin{array}{r}8\\+9\\\hline\end{array}$

Mathematician:____

"These are my number sentences for the NUMBER OF THE DAY."

NUMBER________________ **Number Sentences**	**NUMBER**________________ **Number Sentences**
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=

Mathematician:____

"This is my record of numbers for 'Guess My Rule.'"

Numbers from the class (□)	Numbers by the teacher (△)	Numbers from the class (□)	Numbers by the teacher (△)

Rule △ = _____ □ _____

Rule △ = _____ □ _____

98807

Mathematician:____

"This is my record of numbers for 'Guess My Rule.'"

Numbers from the class (□)	Numbers by the teacher (△)	Numbers from the class (□)	Numbers by the teacher (△)

Rule △ = _____ □ _____

Rule △ = _____ □ _____

98807

Mathematician:____

"I remembered to circle the answer in the number sentence."

PROBLEM	ANSWER	NUMBER SENTENCE

Mathematician:____

"I worked these problems and wrote the number sentences needed for each."

PROBLEM	NUMBER SENTENCE
Ted had 35 rocks. Jim had 63 rocks. Each boy decided to store his rocks in cans, with 7 rocks in each can. Who used more cans? How many more?	
A carton holds 12 small tool boxes or 6 large tool boxes. The factory shipped 28 cartons of small tool boxes and 14 cartons of large tool boxes. How many tool boxes did the factory ship?	
Jill brought her marbles in 4 bags. Each bag contained 6 marbles. She had 12 marbles that were not in bags. How many marbles did Jill have?	
The face value of the coins in one book was $8.16. Martha said the coins were worth twice as much. What was the real value of the coins?	
Roy brought 3 books of his stamp collection. Each book had 6 pages with 8 stamps on a page. How many stamps were in each book? How many stamps were there in all?	
Martha's old coins were mounted in 3 books. Each page held 8 coins. One book had 4 pages, one had 5 pages, and one had 6 pages. How many coins did Martha have?	
There were 102 stores in each of 4 sections at the center. How many stores were there in all? There were 376 small stores at the center. How many larger stores were there?	
The stores were open 11 hours a day 5 days a week. On Saturday, the stores were open 8 hours. How many hours were the stores open in 4 weeks?	
At the pony ring, rides cost 25¢ each. At first, 15 children rode ponies. Later, 24 more children had pony rides. How much did they spend for rides?	

Mathematician: ____________________

"I worked these problems and wrote the number sentences needed for each."

PROBLEM	NUMBER SENTENCE
The toy manager had 1,320 paint boxes in stock. He sold 748 of them. At 98¢ each, how much money had he collected? How many paint boxes did he have left?	
Admission was 5¢ for children and 10¢ for adults. Mrs. Osana paid for three children and two adults. How much did she pay?	
One month 6 students in Mr. Solomon's class each read 5 books. There were 7 other students who each read 4 books. How many books did the 23 students read?	
Had 5 stacks of boards. 17 boards in a stack. Got 6 more stacks. How many boards in all?	
Had 200 cows. Bought 3 times as many. How many bought? How many cows in all?	

Mathematician:____

"I wrote questions that would make math problems out of the given information."

GIVEN	QUESTIONS
Betsy Ross made a flag with 13 stars in a circle. Our flag has 50 stars in rows and columns.	1. 2. 3.
Tom, Dick and Harry each filled a bag with 30 aluminum cans. One bag tipped over and 10 cans fell out.	1. 2. 3.
SPECIALS Videogames $ 3.99 Watches 4.29 Cups .88 Candles .69	1. 2. 3.
Fred's mother needs 150 paper plates for a picnic. A package of 30 costs 88¢. A package of 50 costs $1.19	1. 2. 3.

Mathematician:____

"I wrote questions that would make math problems out of the given information."

GIVEN	QUESTIONS
A carousel had mostly horses. Between the horses were bears. There were 7 bears.	1. 2. 3.
George has 23 socks in a drawer. 9 are brown and the rest are blue.	1. 2. 3.
At the baseball game, Sam sold 3 hamburgers for every 5 hot dogs.	1. 2. 3.
Sarah has 5 rows of tomato plants. Each row has the same number of plants. She has 125 tomato plants.	1. 2. 3.

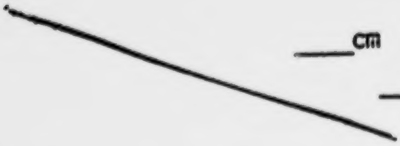
Mathematician: ____

"These are my number sentences for the NUMBER OF THE DAY."

NUMBER ____________	**NUMBER** ____________
Number Sentences	**Number Sentences**
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=
=	=

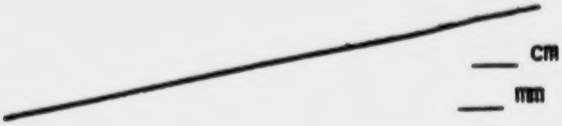
Mathematician: ______________________________________

"I measured these lines."



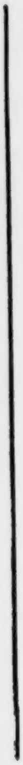
___ cm

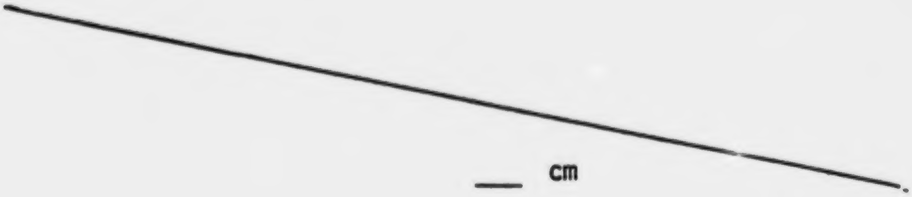
___ mm



___ cm

___ mm



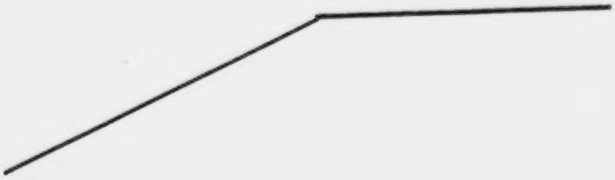


___ cm

___ mm

___ cm

___ mm



___ cm

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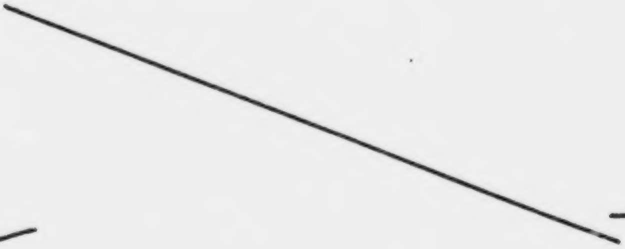

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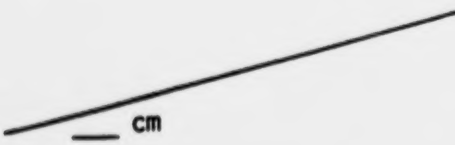


___ cm

___ mm

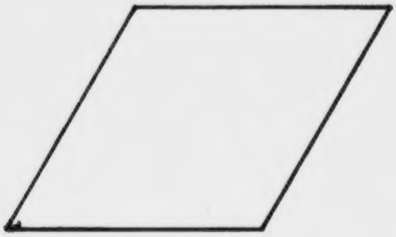
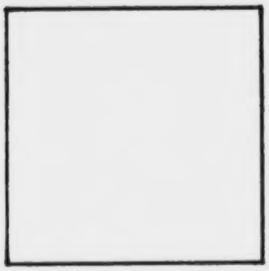
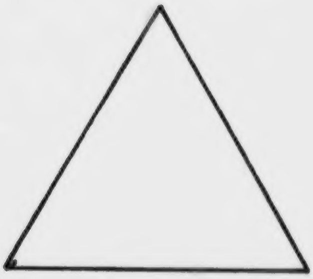
Mathematician: ______________________________

"Our group estimated these lengths and then measured them in centimeters."

LENGTH MEASURED	ESTIMATE OF CENTIMETERS	MEASUREMENT OF CENTIMETERS

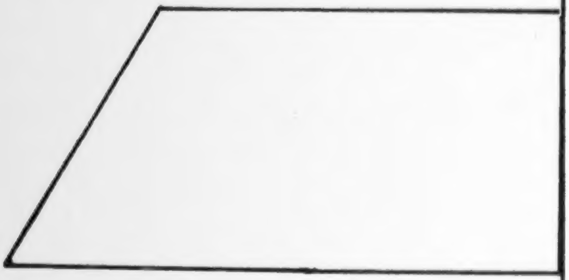
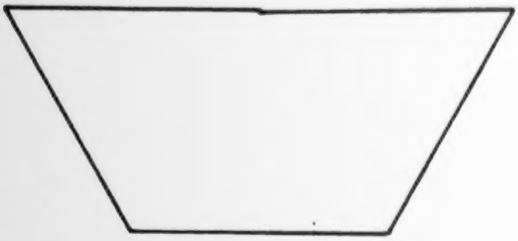
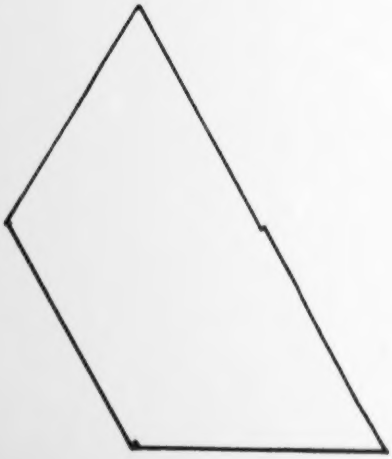
Mathematician:______________________________

"Our group measured the area of different shapes using centimeter squares."

SHAPE	ESTIMATE of Area	MEASUREMENT of Area
		
		
		

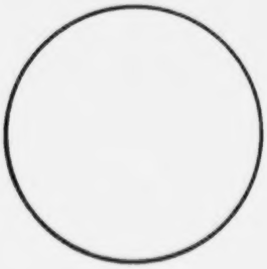
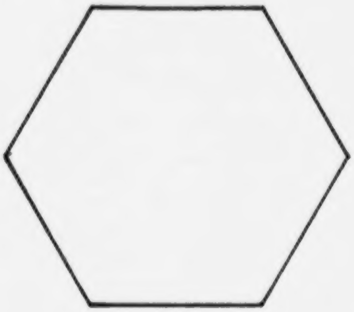
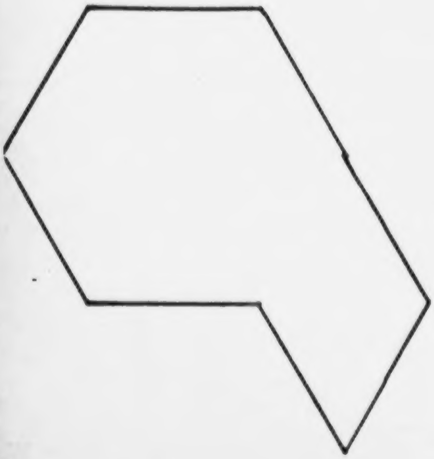
Mathematician:____

"Our group measured the area of different shapes using centimeter squares."

SHAPE	**ESTIMATE of Area**	**MEASUREMENT of Area**
		
		
		

Mathematician:______________________________

"Our group measured the area of different shapes using centimeter squares."

SHAPE	ESTIMATE of Area	MEASUREMENT of Area
		
		
		

Mathematician:____

"Our group made MULTILINK cubes blocks the same size as the blocks we were given to use."

BLOCK SIDES MEASURED WITH MULTILINKS			NUMBER OF MULTILINKS TO MAKE THIS BLOCK	VOLUME OF THE BLOCK
Side 1	Side 2	Side 3		

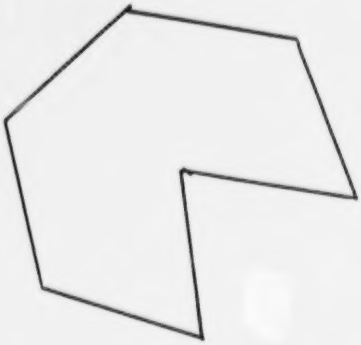
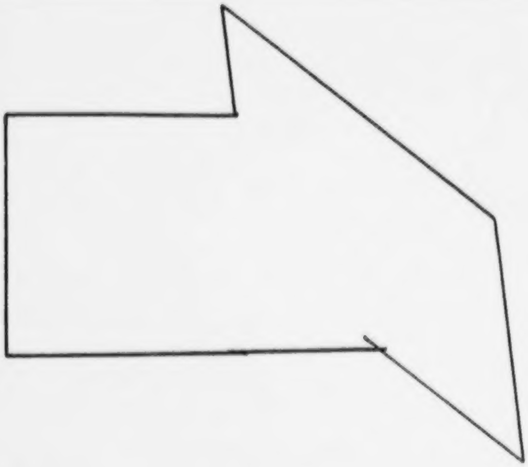
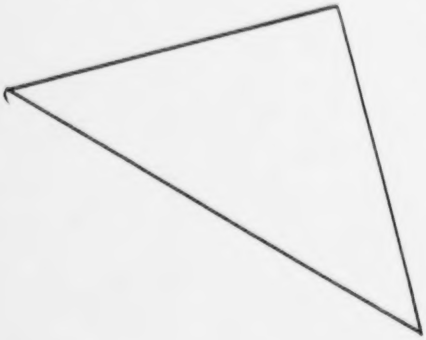
Mathematician:____

"I found volumes for the blocks given."

BLOCK SIDES SIDE 1	SIDE 2	SIDE 3	VOLUME OF THE BLOCK IN CUBIC UNITS
1	2	3	
2	3	2	
1	3	3	
2	3	3	
3	1	3	
3	2	2	
3	2	4	
3	3	4	

Mathematician: ____________________

"Our group measured the area of different shapes using centimeter squares."

SHAPE	**ESTIMATE of Area**	**MEASUREMENT of Area**
		
		
		

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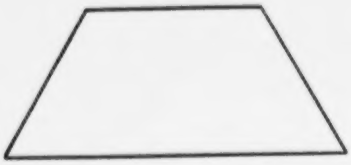
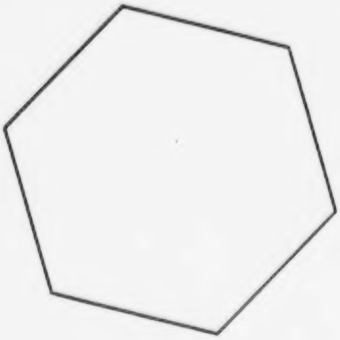
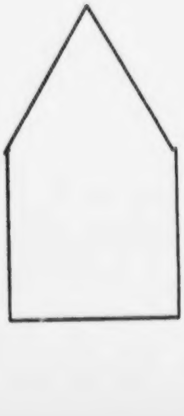
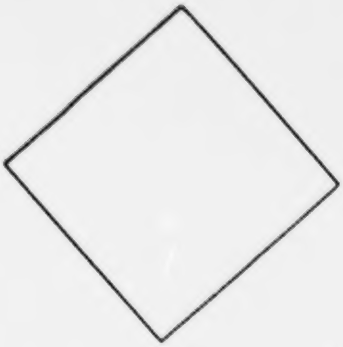
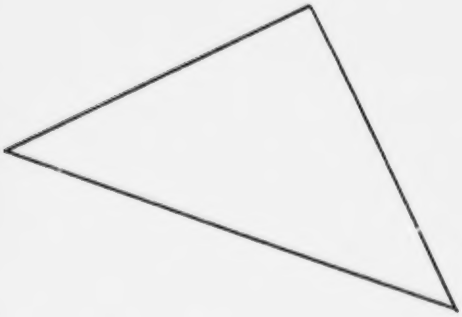
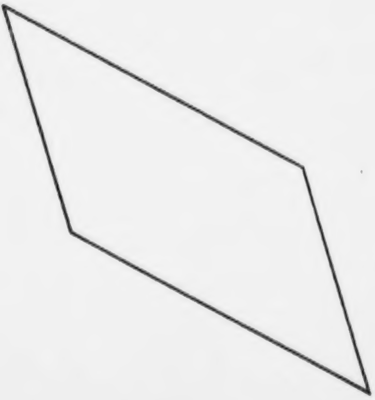
Mathematician:____

"Our group measured the area of different shapes using centimeter squares."

SHAPE	ESTIMATE of Area	MEASUREMENT of Area
		
		
		

Mathematician:____

"Our group measured the area of different shapes using centimeter squares."

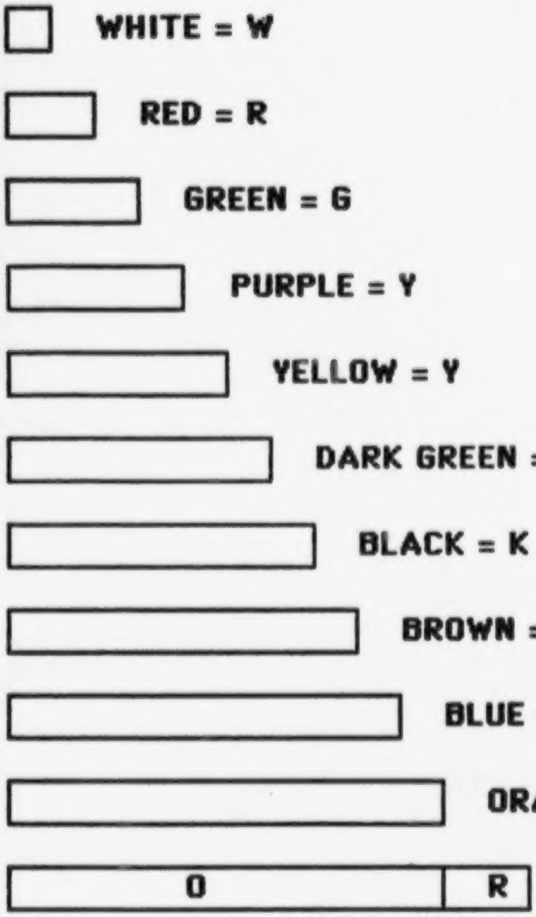
SHAPE	ESTIMATE of Area	MEASUREMENT of Area
		
		
		

Mathematician: ____

"I made 'houses' out of ______________________ on the floors given and recorded how many cubes were in the house."

FLOOR	SIZE X	NUMBER OF STORIES =	TOTAL ROOMS
L	W		
1	2	1	
		2	
		3	
		4	
		5	
2	2	1	
		2	
		3	
		4	
		5	
2	3	1	
		2	
		3	
		4	
		5	
3	3	1	
		2	
		3	
		4	
		5	

THE ROD CODE



WHITE = W

RED = R

GREEN = G

PURPLE = Y

YELLOW = Y

DARK GREEN = D

BLACK = K

BROWN = N

BLUE = E

ORANGE = O

ORANGE + another rod in a train = O+

Mathematician:______________________________________

"I completed this table to show what fractions I get from different ONE lengths."

ONE	W	R	G	P	Y	D
EXAMPLE: D	1/6	1/3	1/2	2/3	5/6	1
P						
Y						
K						
N						
E						
O						
O+R						
O+D						

ONE	K	N	E	O	O + R	O + D
G						
P						
Y						
D						
K						
N						
E						
O						
O + R						
O + D						

MATHEMATICIAN:____

One-Third

RODS	SENTENCE
R	No Rod = 1/3
G	
P	
Y	
D	
K	
N	
E	
O	
O + W	
O + R	
O + G	
O + P	
O + Y	
O + D	
O + K	
O + N	
O + E	
2 O	

Mathematician:____

"I named each fraction three different ways."

Fraction Example: 1/2	2/4	3/6	4/8	
1/3				
2/3				
1/4				
3/4				
1/5				
2/5				
3/5				
4/5				
1/6				
5/6				
1/8 3/8				

Mathematician:____

I worked these rod equations and put the letter of the correct rod in the ☐

☐ = R + G

☐ = Y − R

Y − G = ☐

P − R = ☐

Y − 2R = ☐

☐ = Y + G

☐ = R + P

☐ = G + P

Y − W = ☐

Y − R = ☐

P − W = ☐

☐ = P − R

P − ☐ = G

Y − ☐ = W

☐ − W = G

☐ − P = W

R = ☐ − W

G = ☐ − R

Y = ☐ − W

R = ☐ − G

R = Y − ☐

G = Y − ☐

Mathematician:____

"I wrote fraction number sentences for the Rod equations. I use W rods to be sure of the fractions."

ROD EQUATION	FRACTION EQUATION
R + G = ☐	
Y – R = ☐	
☐ = Y – G	
☐ = P + R	
☐ = Y + G	
Y – 2R = ☐	
G + P = ☐	
Y – W = ☐	

Mathematician:____________________________________

"I wrote fraction number sentences for the Rod equations.
I use W rods to be sure of the fractions."

ROD EQUATION	FRACTION EQUATION
Y − R = ☐	
☐ = P + W	
☐ = P − R	
P − ☐ = G	
Y − ☐ = W	
☐ − G = W	
☐ − W = P	
R = ☐ − W	

Mathematician: ______________________________

"I wrote fraction number sentences for the Rod equations.
I use W rods to be sure of the fractions."

ROD EQUATION	FRACTION EQUATION
G = ☐ - R	
Y = ☐ - W	
R = ☐ - G	
R = Y - ☐	
G = Y - ☐	

Mathematician:____

"I found ONE rod lengths so these fractions would be in the same family and worked these exercises."

1/2 + 1/3 = ☐

4/5 + 1/2 = ☐

☐ = 3/4 + 5/6

☐ = 1/2 + 3/8

☐ = 1/2 - 3/8

☐ = 7/12 - 1/3

7/16 - 1/2 = ☐

1/4 - 1/16 = ☐

3/5 - 1/3 = ☐

2/3 - 1/4 = ☐

1/2 — 1/3 = ☐

4/5 — 1/2 = ☐

3/4 — 5/6 = ☐

☐ = 1/2 — 3/8

☐ = 1/2 x 3/8

☐ = 7/12 — 1/3

☐ = 1/4 — 1/16

☐ = 3/5 — 1/3

2/3 — 1/4 = ☐

Mathematician:______________________________

"I used Cuisenaire Rods to complete these fraction number sentences."

1/2 + 1/3 = ☐

☐ = 1/2 - 1/3

1/2 ÷ 1/3 = ☐

☐ = 1/3 ÷ 1/2

1/6 + 1/3 = ☐

1/3 ÷ 1/6 = ☐

☐ = 1/6 ÷ 1/3

1/6 + 1/2 = ☐

☐ = 1/2 - 1/6

☐ = 1/2 ÷ 1/6

1/6 ÷ 1/2 = ☐

1/6 + 2/3 = ☐

2/3 - 1/6 = ☐

☐ = 1/6 ÷ 2/3

☐ = 2/3 ÷ 1/6

1/2 + 2/3 = ☐

☐ = 2/3 - 1/2

☐ = 2/3 ÷ 1/2

1/2 ÷ 2/3 = ☐

5/6 + ☐ = 1

5/6 - ☐ = 1/2

☐ ÷ 1/6 = 3

1/4 = ☐ ÷ 1/6

5/6 ÷ ☐ = 2 1/2

☐ ÷ 1/2 = 1 2/3

☐ = 5/6 ÷ 1/3

Mathematician:____________________________________

"I use O + R = ONE to find these fractions."

5/12 + 1/4 = ☐

5/12 + 1/6 + 1/3 = ☐

☐ = 7/12 + 1/3

☐ = 5/6 + 1/4

☐ = 5/6 + 1/2

5/6 + 5/12 = ☐

3/4 + 7/12 = ☐

7/12 - 1/2 = ☐

11/12 - 1/2 = ☐

☐ = 11/12 - 2/3

☐ = 3/4 - 5/12

☐ = 5/6 - 3/4

☐ = 2/3 - 5/12

11/12 - 3/4 = ☐

11/12 - 2/3 = ☐

11/12 + 1/6 = ☐

11/12 - 1/6 = ☐

2/3 + 5/6 = ☐

7/12 - 1/3 = ☐

7/12 - 3/4 = ☐

☐ = 2/3 - 7/12

☐ = 11/12 - 3/4

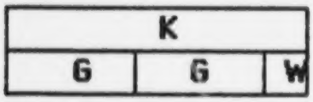
☐ = 3/4 - 1/3

Mathematician:______________________________

"I use O + R = ONE to find these fractions."

Example:

7/12 ÷ 1/4 = 2 1/3



W = 1/3 G

☐ = 11/12 ÷ 3/4

7/12 ÷ 2/3 = ☐

7/12 ÷ 1/3 = ☐

1/2 ÷ 5/12 = ☐

7/12 ÷ 1/4 = ☐

☐ = 5/12 ÷ 1/4

1/2 ÷ 11/12 = ☐

1/2 of 3/4 = ☐

1/3 ÷ 7/12 = ☐

11/12 ÷ 2/3 = ☐

☐ = 3/4 ÷ 11/12

☐ = 2/3 ÷ 7/12

5/12 ÷ 1/2 = ☐

5/12 ÷ 2/3 = ☐

2/3 ÷ 5/12 = ☐

1/3 ÷ 7/12 = ☐

Mathematician:____

"I compared the rods given, used W rods when I had to and wrote the number sentences."

RODS GIVEN	Which is Larger?	How Many of the Smaller from Larger	How Many of the Larger from Smaller?
Example: R,G	1/2 > 1/3	1/2 ÷ 1/3 = 1 1/2	1/3 ÷ 1/2 = 2/3
R,P			
W,G			
R,Y			
W,P			
G,P			
G,Y			
P,Y			
W,D			
R,D			
G,D			
P,D			

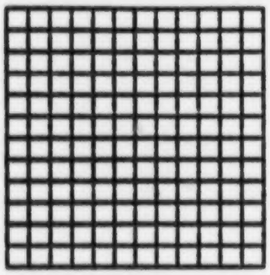
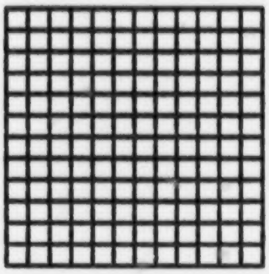
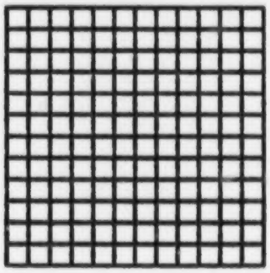
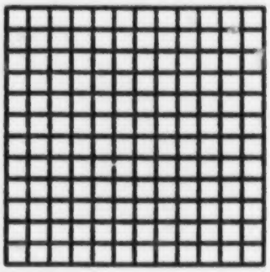
Mathematician:____

"I made rectangles to do these fraction multiplications."

Fractions	Rectangles	Product
$\frac{2}{3} \times \frac{3}{4}$		
$\frac{1}{5} \times \frac{2}{3}$		
$\frac{5}{8} \times \frac{3}{5}$		
$\frac{2}{5} \times \frac{3}{4}$		

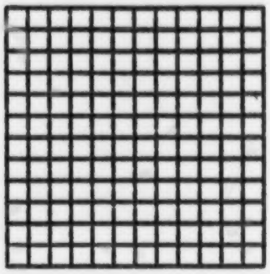
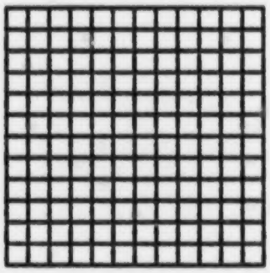
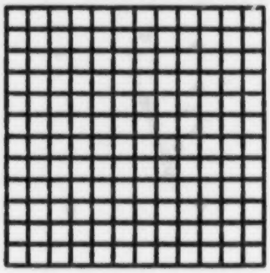
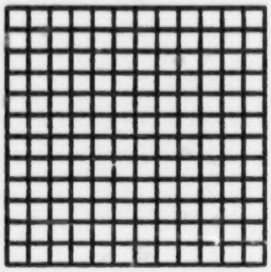
Mathematician:____

"I made rectangles to do these fraction multiplications."

Fractions	Rectangles	Product
$\frac{2}{5} \times \frac{3}{8}$		
$\frac{1}{2} \times \frac{3}{8}$		
$\frac{2}{3} \times \frac{4}{5}$		
$\frac{5}{8} \times \frac{3}{4}$		

Mathematician:______________________________________

"I made rectangles to do these fraction multiplications."

Fractions	**Rectangles**	**Product**
		
		
		
		

FRACTION BARS

BAR	SHADED PARTS	FRACTION NAME
ORANGE	2	
	6	
	7	
	11	
RED	2	
	3	
	4	
	5	
	6	
YELLOW	1	
	2	
	3	
GREEN	1	
	2	
BLUE	1	
	2	
	3	
	4	

FRACTION BARS pg. 2

Find two bars of DIFFERENT color that have the SAME number of shaded parts. Is the SAME FRACTION shown?

What fractions are shown by these bars?

Sort the bars by color. How are the bars in each group DIFFERENT?

____

____

Sort the bars by AREA of shaded parts. How are these bars in each group DIFFERENT?

____

____

Sort the bars by NUMBER of shaded parts. How are these bars different?

____

____

Mathematician:____

"I completed this table of equivalent fractions by comparing shaded areas of fraction bars."

BAR	FRACTIONS											
Orange	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
Red										5/6		
Blue			1/4									
Yellow												1
Green												1

"I use fraction bars to complete these equivalent fraction families."

$$\frac{1}{2} = \frac{\quad}{4} = \frac{\quad}{6} = \frac{\quad}{12}$$

$$\frac{1}{3} = \frac{\quad}{6} = \frac{\quad}{12}$$

$$\frac{1}{4} = \frac{\quad}{12}$$

$$\frac{1}{6} = \frac{\quad}{12}$$

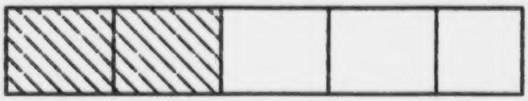
$$\frac{2}{3} = \frac{\quad}{6} = \frac{\quad}{12}$$

$$\frac{3}{4} = \frac{\quad}{12}$$

Mathematician: ______________________________

"I made my own fraction bars by shading enough parts to show each fraction."

Example:



2/5

3/10

3/8

5/16

7/10

3/5

7/8

3/10

Mathematician: ______________________________

"I made my own fraction bars by shading enough parts to show each fraction."

3/16

7/8

9/10

7/16

Mathematician:____

"I changed these fractions to fractions with a COMMON DENOMINATOR and found the answers."

Fractions	"Common Denominator" Bar	Answer
1/2 + 1/3	RED (sixths)	5/6
1/2 - 1/3		
2/3 - 1/4		
2/3 + 1/4		
1/6 + 2/3		
2/3 - 1/6		
5/6 - 1/3		
5/6 + 1/4		
2/3 - 1/6		

Mathematician____

"I use RED color fraction bars and COMPARED ALL pairs of shaded parts and JOINED together ALL pairs of shaded parts.."

Number of shaded parts	Differences between shaded parts	Sum of shaded parts
EXAMPLE; $\frac{3}{6}$, $\frac{1}{6}$	$\frac{2}{6}$	$\frac{4}{6}$

Mathematician____________________________________

"I use GREEN color fraction bars and COMPARED ALL pairs of shaded parts and JOINED together ALL pairs of shaded parts.."

Number of shaded parts	Differences between shaded parts	Sum of shaded parts

Mathematician____

"I use BLUE color fraction bars and COMPARED ALL pairs of shaded parts and JOINED together ALL pairs of shaded parts.."

Number of shaded parts	Differences between shaded parts	Sum of shaded parts

Mathematician____

"I use ORANGE color fraction bars and COMPARED ALL pairs of shaded parts and JOINED together ALL pairs of shaded parts.."

Number of shaded parts	Differences between shaded parts	Sum of shaded parts

Mathematician____

"I use YELLOW color fraction bars and COMPARED ALL pairs of shaded parts and JOINED together ALL pairs of shaded parts.."

Number of shaded parts	Differences between shaded parts	Sum of shaded parts

Mathematician________________________________

"I use RED color fraction bars to see what fractions can be made from other fractions."

Pairs of bars	Larger ÷ smaller	Smaller ÷ larger
EXAMPLE: $\frac{3}{6}, \frac{1}{6}$	$3 \div 1 = 3$	$1 \div 3 = \frac{1}{3}$

Mathematician____________________________________

"I use BLUE color fraction bars to see what fractions can be made from other fractions."

Pairs of bars	Larger ÷ smaller	Smaller ÷ larger

Mathematician________________________________

"I use [YELLOW] color fraction bars to see what fractions can be made from other fractions."

Pairs of bars	Larger ÷ smaller	Smaller ÷ larger

Mathematician____

"I use GREEN color fraction bars to see what fractions can be made from other fractions."

Pairs of bars	Larger ÷ smaller	Smaller ÷ larger

Mathematician____

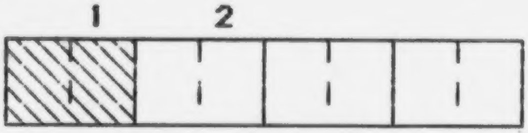
"I use ORANGE color fraction bars to see what fractions can be made from other fractions."

Pairs of bars	Larger ÷ smaller	Smaller ÷ larger

Mathematician:____

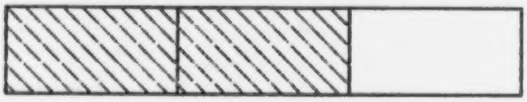
"For the fraction bars given, I found parts of these and I found multiples of these."

Example:



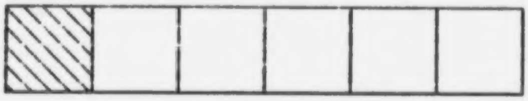
2 x 1/4 = $\boxed{1/2}$

1/2 x 1/4 = $\boxed{1/8}$



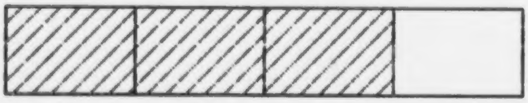
2 x 2/3 = ☐

1/3 x 2/3 = ☐



5 x 1/6 = ☐

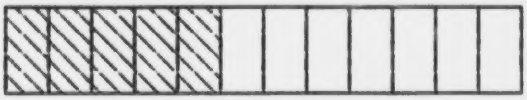
1/2 x 1/6 = ☐



2 x 3/4 = ☐

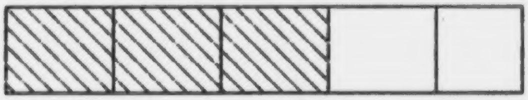
1/2 x 3/4 = ☐

Mathematician:____ **Pg. 2**



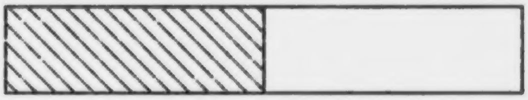
2 x 5/12 = ☐

1/5 x 5/12 = ☐



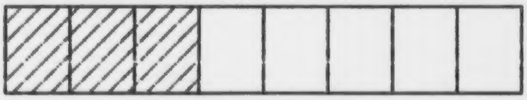
2 x 3/5 = ☐

1/3 x 3/5 = ☐



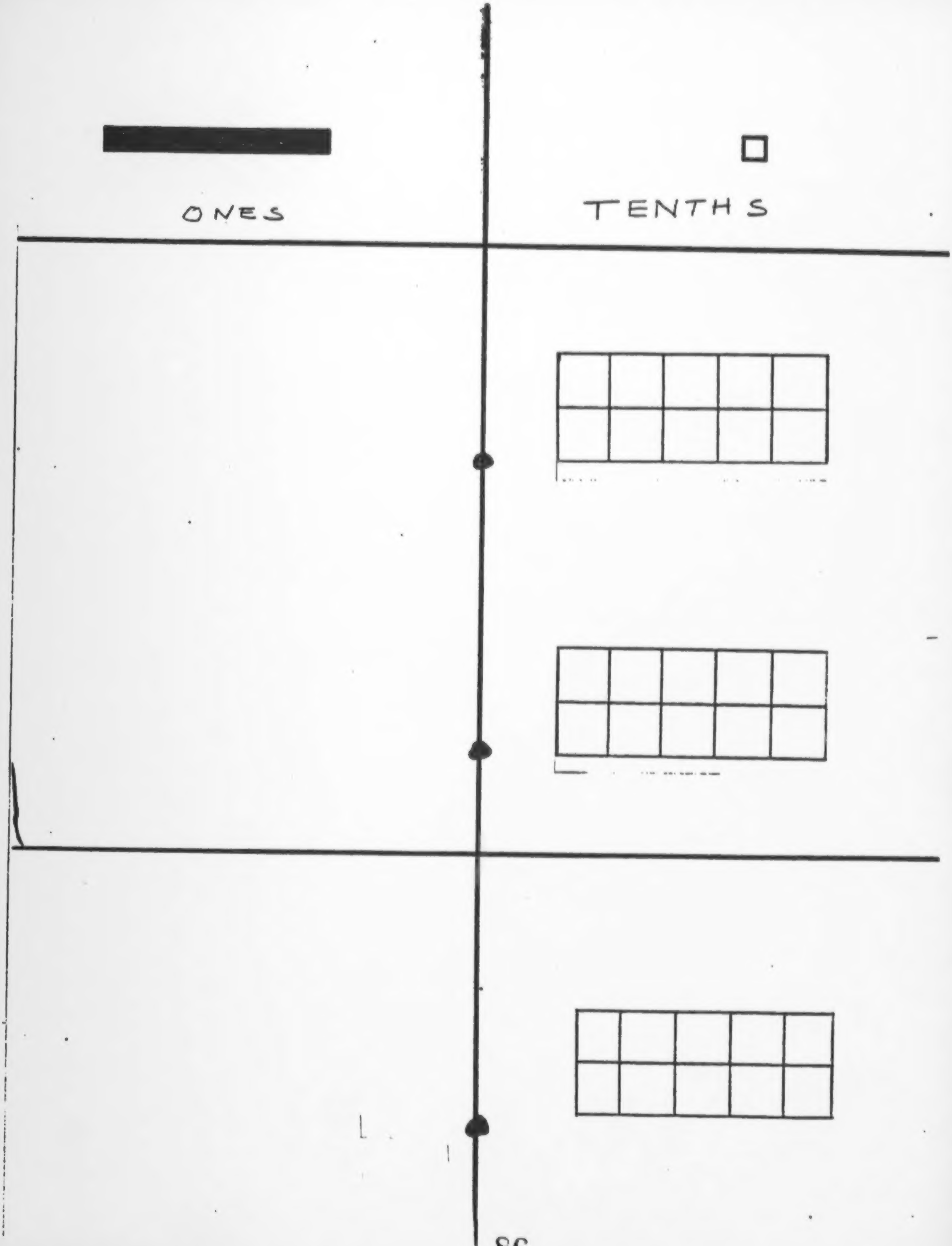
3 x 1/2 = ☐

1/3 x 1/2 = ☐



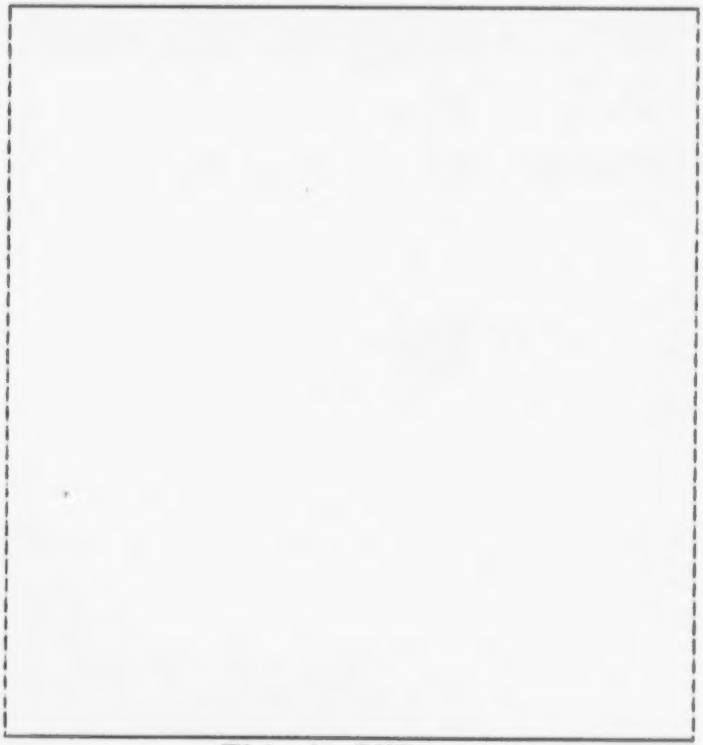
2 x 3/8 = ☐

1/2 x 3/8 = ☐


ONES
TENTHS

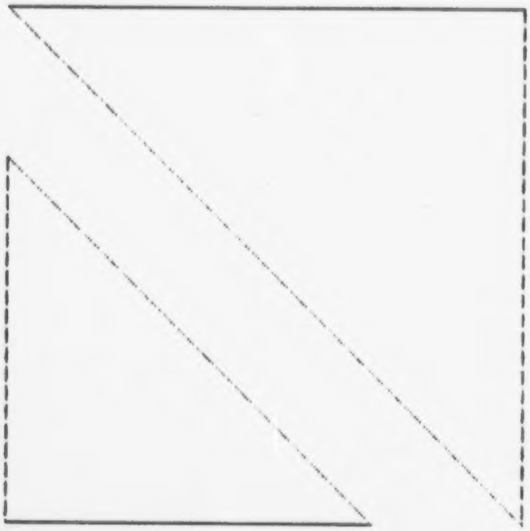
Mathematician: ________________________________

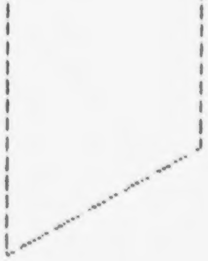
"Tangram pieces labelled as fractions."

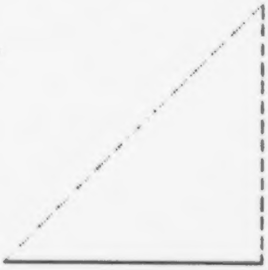


This is ONE

"What fraction is each piece below?"







Mathematician:______________________________

"I completed these using DECIMAL FRACTION BARS."

DECIMALS	JOINING RESULT
Example: 1.1, 1.2	1.1 + 1.2 = 2.3
1.1, 2.1	
1.2, 1.7	
1.3, 1.7	
1.4, 1.8	
1.5, 1.8	
1.6, 1.6	

Mathematician:____

"I completed these using DECIMAL FRACTION BARS."

DECIMALS	JOINING RESULT
1.3, 1.9	
2.0, 1.4	
2.1, 1.6	
2.4, 0.6	
3.1, 0.7	
2.1, 0.4	

Mathematician:______________________________________

"I used base ten blocks with the long as ONE and the units as TENTHS to work these."

☐☐☐☐☐☐☐☐☐☐ = ONE

☐ = TENTH

ONES	TENTHS	ONES	TENTHS
3	0	3	0
− 2	0	− 1	7
3	5	3	2
− 2	3	− 1	6
3	5	4	6
0	1	− 0	9
3	3	4	3
− 2	0	− 0	8
2	1	3	8
− 1	2	− 1	9
4	1	4	0
− 3	2	0	9

Mathematician:____

"I used base ten blocks with the long as ONE and the units as TENTHS to work these."

□□□□□□□□□□ = ONE

□ = TENTH

ONES	TENTHS	ONES	TENTHS
3	4	4	6
+ 2	5	+ 1	6
3	1	2	8
+ 4	9	+ 1	8
3	5	1	9
+ 2	5	+ 2	9
0	3	0	4
+ 1	8	+ 2	6
5	1	2	2
+ 0	7	+ 3	3
1	9	2	6
+ 3	2	1	1

Mathematician:____________________________________

"I used base ten blocks with the long as ONE and the units as TENTHS to work these."

□□□□□□□□□□ = ONE
□ = TENTH

ONES	TENTHS	ONES	TENTHS
1	6	2	0
− 0	4	− 1	2
1	0	2	2
− 0	6	− 0	6
1	6	2	1
− 1.	4	− 0	5
2	1	3	2
− 1	3	1	1
2	0	3	2
− 1	0	−1	1
1	4	3	3
− 1	3	− 2	3

Mathematician:____

"I used base ten blocks with the long as ONE and the units as TENTHS to work these."

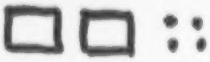
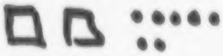
□□□□□□□□□□ = ONE

□ = TENTH

ONES	TENTHS	ONES	TENTHS
3	5	4	0
− 2	4	− 3	7
2	5	5	2
− 1	9	− 3	8
2	5	4	5
− 1	1	− 3	4
1	8	2	2
− 1	6	− 2	2
4	3	7	8
− 0	8	− 6	7
2	8	5	0
− 2	0	− 4	5

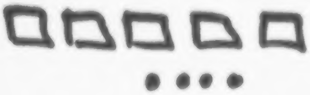
Mathematician:____

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
Example: 	2 ONES AND 4 HUNDREDTHS	2.04
	0 ONES AND 5 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	3.07
	1 ONES AND 9 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	

Mathematician:______________________________

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
	___ ONES AND ___ HUNDREDTHS	4.01
	6 ONES AND 2 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	5.05
	0 ONES AND 6 HUNDREDTHS	

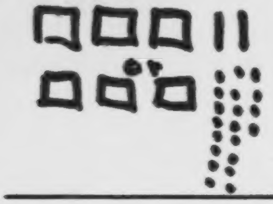
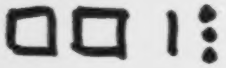
Mathematician:____

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
	____ONES AND ____HUNDREDTHS	
	____ONES AND ____HUNDREDTHS	
	____ONES AND ____HUNDREDTHS	
	____ ONES AND ____HUNDREDTHS	
	____ONES AND ____HUNDREDTHS	

Mathematician: ______________________________

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
Example: 	3 ONES AND 20 HUNDREDTHS	3.20
	2 ONES AND 4 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	1.07
	1 ONES AND 32 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	

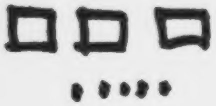
Mathematician: ____________________

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
	1 ONES AND 43 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	1.61
	2 ONES AND 4 HUNDREDTHS	
	2 ONES AND 30 HUNDREDTHS	
	___ ONES AND ___ HUNDREDTHS	3.22

Mathematician: ______________________________

"I used base ten pieces to complete this decimal chart."

BASE TEN BLOCKS	DECIMAL NAME	NUMERAL
	3 ONES AND 2 HUNDREDTHS	
	___ONES AND ___HUNDREDTHS	
	___ONES AND ___HUNDREDTHS	2.08
	1 ONES AND 19 HUNDREDTHS	
	1 ONES AND 7 HUNDREDTHS	

Mathematician: ______________________

"I used base ten blocks to complete this chart."

WORDS	NUMERALS
20 TENTHS 200 HUNDREDTHS	2.0 2.00
5 TENTHS 50 HUNDREDTHS	
______ TENTHS ______ HUNDREDTHS	.68
3.7 TENTHS 37 HUNDREDTHS	
______ TENTHS ______ HUNDREDTHS	.30
______ TENTHS ______ HUNDREDTHS	.09
6 TENTHS 60 HUNDREDTHS	

Mathematician: ____________________

"I used base ten blocks to complete this chart."

WORDS	NUMERALS
14 TENTHS 140 HUNDREDTHS	1.4 1.40
____ TENTHS ____ HUNDREDTHS	3.2
____ TENTHS ____ HUNDREDTHS	1.1
____ TENTHS ____ HUNDREDTHS	.6
5 TENTHS ____ HUNDREDTHS	
____ TENTHS 90 HUNDREDTHS	
____ TENTHS 150 HUNDREDTHS	

Mathematician: ______________________________

"I used base ten blocks to complete this chart."

WORDS	NUMERALS
______ TENTHS 20 HUNDREDTHS	
______ TENTHS ______ HUNDREDTHS	.30
______ TENTHS 80 HUNDREDTHS	
5 TENTHS ______ HUNDREDTHS	
______ TENTHS ______ HUNDREDTHS	.9
______ TENTHS ______ HUNDREDTHS	.85
______ TENTHS 40 HUNDREDTHS	

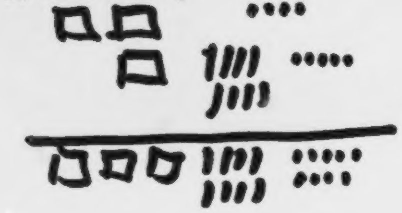
Mathematician: ________________________________

"I use base ten blocks to see how the decimals are related."

TENTHS	HUNDREDTHS	ANOTHER
EXAMPLE! 5	50	$\frac{5}{10}$
	60	
	400	
20		
4		
	30	
7		
	90	
12		

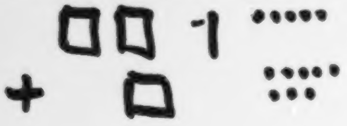
Mathematician:____

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
EXAMPLE; 	2.04 + 1.85 3.89
	1.07 +2.15 .
	0.98 + 1.02 .
	2.44 + 1.05 .

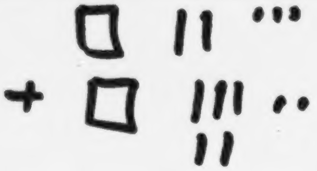
Mathematician:______________________________________

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	. . .
	1.09 + 1.81 .
	1.49 + 0.39 .
	2.39 + 1.09 .

Mathematician:____

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	1.19 +2.39 ______ .
	. + . ______ .
	1.86 +0.94 ______ .
	3.01 +1.82 ______ .

Mathematician:____

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	2.65 − 1.41 .
	2.60 − 1.47 .
	2.60 − 1.73 .
	3.00 1.99 .

Mathematician: ______________________________

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	3 . 00 − 2 . 44 .
	2 . 50 − 1 . 79 .
	2 . 25 − 2 . 19 .
	1 . 50 − 1 . 39 .

Mathematician:______________________________________

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	3.00 − 2.61 .
	2.00 − 1.98 .
	1.25 − 1.19 .
	5.00 4.33 .

Mathematician:______________________________________

"I used base ten blocks with the square = ONE, long = TENTH and unit = HUNDREDTH to work these."

BASE TEN BLOCKS	NUMERALS
	$\begin{array}{r} 10.00 \\ -\underline{\;8.37} \\ . \end{array}$
	$\begin{array}{r} 10.00 \\ -\underline{\;7.89} \\ . \end{array}$
	$\begin{array}{r} 10.00 \\ -\underline{\;4.04} \\ . \end{array}$
	$\begin{array}{r} 5.00 \\ -\underline{\;1.29} \\ . \end{array}$

Mathematician:____________________

"This is my practice sheet for mentally multiplying by tens and hundreds."

10 x 6 = ____
10 x 7 = ____
13 x 10= ____
17 x 10= ____
10 x 21= ____
10 x 32= ____
10 x 38= ____
10 x 43= ____
10 x 47= ____
53 x 10= ____
55 x 10= ____
56 x 10= ____
10 x 61= ____
10 x 64= ____
10 x 69= ____
70 x 10= ____
60 x 10= ____
50 x 10= ____
10 x 40= ____
10 x 30= ____
10 x 20= ____
10 x 80= ____
90 x 10 = ____
72 x 10= ____
10 x 77= ____
10 x 83= ____
86 x 10= ____
92 x 10= ____
99 x 10= ____

10 x 60 = ____
10 x 70 = ____
130 x 10 = ____
170 x 10 = ____
210 x 10 = ____
320 x 10 = ____
380 x 10 = ____
430 x 10 = ____
470 x 10 = ____
53 x 100 = ____
550 x 10 = ____
10 x 560 = ____
10 x 610 = ____
10 x 640 = ____
10 x 690 = ____
10 x 700 = ____
10 x 600 = ____
500 x 10 = ____
400 x 10 = ____
300 x 10 = ____
10 x 200 = ____
800 x 10 = ____
10 x 900 = ____
720 x 10 = ____
770 x 10 = ____
10 x 830 = ____
10 x 860 = ____
10 x 920 = ____
10 x 990 = ____

100 x 60 = ____
100 x 70 = ____
130 x 100 = ____
170 x 100 = ____
210 x 100 = ____
320 x 100 = ____
380 x 100 = ____
430 x 100 = ____
470 x 100 = ____
530 x 10 = ____
55 x 100 = ____
56 x 100 = ____
610 x 100 = ____
640 x 100 = ____
100 x 690 = ____
100 x 700 = ____
600 x 100 = ____
500 x 100 = ____
400 x 100 = ____
300 x 100 = ____
100 x 200 = ____
100 x 800 = ____
100 x 900 = ____
100 x 720 = ____
100 x 770 = ____
100 x 830 = ____
100 x 860 = ____
100 x 920 = ____
100 x 990 = ____

Mathematician: ______________________________

"My hundreds, thousands and tens facts."

100 ÷ 20 = ______

200 ÷ 20 = ______

300 ÷ 20 = ______

400 ÷ 20 = ______

500 ÷ 20 = ______

200 ÷ 30 = ______

300 ÷ 30 = ______

400 ÷ 30 = ______

200 ÷ 40 = ______

600 ÷ 20 = ______

700 ÷ 20 = ______

500 ÷ 30 = ______

700 ÷ 30 = ______

500 ÷ 30 = ______

200 ÷ 40 = ______

500 ÷ 40 = ______

300 ÷ 40 = ______

200 ÷ 50 = ______

600 ÷ 50 = ______

300 ÷ 50 = ______

600 ÷ 40 = ______

800 ÷ 30 = ______

900 ÷ 20 = ______

300 ÷ 70 = ______

200 ÷ 60 = ______

300 ÷ 60 = ______

700 ÷ 60 = ______

200 ÷ 80 = ______

400 ÷ 80 = ______

800 ÷ 80 = ______

300 ÷ 50 = ______

700 ÷ 80 = ______

900 ÷ 80 = ______

200 ÷ 90 = ______

500 ÷ 90 = ______

900 ÷ 90 = ______

500 ÷ 80 = ______

300 ÷ 90 = ______

600 ÷ 60 = ______

500 ÷ 50 = ______

300 ÷ 80 = ______

400 ÷ 40 = ______

200 ÷ 50 = ______

700 ÷ 70 = ______

100 ÷ 60 = ______

100 ÷ 50 = ______

500 ÷ 10 = ______

Mathematician:______________________________

"My hundreds, thousands and tens facts."

20 X 100 = ______
20 X 300 = ______
20 X 200 = ______
20 X 400 = ______
20 X 500 = ______
30 X 200 = ______
30 X 300 = ______
30 X 400 = ______
40 X 200 = ______
20 X 600 = ______
20 X 700 = ______
30 X 500 = ______
30 X 700 = ______
30 X 500 = ______
40 X 200 = ______
40 X 500 = ______
40 X 300 = ______
50 X 200 = ______
50 X 600 = ______
50 X 300 = ______
40 X 600 = ______

30 X 800 = ______
20 X 900 = ______
70 X 300 = ______
60 X 200 = ______
60 X 300 = ______
60 X 700 = ______
80 X 200 = ______
80 X 400 = ______
80 X 900 = ______
50 X 300 = ______
80 X 700 = ______
80 X 900 = ______
90 X 200 = ______
90 X 500 = ______
90 X 900 = ______
80 X 800 = ______
80 X 500 = ______
90 X 300 = ______
60 X 600 = ______
50 X 500 = ______
80 X 300 = ______

40 X 400 = ______
50 X 200 = ______
70 X 700 = ______
60 X 100 = ______
50 X 100 = ______
10 X 500 = ______

Mathematician:____

"This is my speed practice in dividing hundreds by tens."

eight HUNDRED ÷ four TENS = ______ TENS (800 ÷ 40 = ______)

eight HUNDRED ÷ eight TENS = ______ TENS (800 ÷ 80 = ______)

nine HUNDRED ÷ one TEN = ______ TENS (900 ÷ 10 = ______)

nine HUNDRED ÷ three TENS = ______ TENS (900 ÷ 30 = ______)

nine HUNDRED ÷ nine TENS = ______ TENS (900 ÷ 90 = ______)

A LITTLE HARDER --

three HUNDRED ÷ two TENS = ______ TENS + _____ ONES (300 ÷ 20 = ______)

five HUNDRED ÷ two TENS = ______ TENS + _____ ONES (500 ÷ 20 = ______)

six HUNDRED ÷ four TENS = ______ TENS + _____ ONES (600 ÷ 40 = ______)

Mathematician:______________________________

"This is my speed practice in dividing hundreds by tens."

one HUNDRED ÷ one TEN = ______ TENS (100 ÷ 10 = ______)

two HUNDRED ÷ one TEN = ______ TENS (200 ÷ 10 = ______)

two HUNDRED ÷ two TENS = ______TENS (200 ÷ 20 = ______)

three HUNDRED ÷ one TEN = ______ TENS (300 ÷ 10 = ______)

three HUNDRED ÷ three TENS = ______ TENS (300 ÷ 30 = ______)

four HUNDRED ÷ one TEN = ______ TENS (400 ÷ 10 = ______)

four HUNDRED ÷ two TENS = ______ TENS (400 ÷ 20 = ______)

four HUNDRED ÷ four TENS = ______ TENS (400 ÷ 40 = ______)

five HUNDRED ÷ one TEN = ______ TENS (500 ÷ 10 = ______)

five HUNDRED ÷ five TENS = ______ TENS (500 ÷ 50 = ______)

six HUNDRED ÷ one TEN = ______ TENS (600 ÷ 10 = ______)

six HUNDRED ÷ two TENS = ______ TENS (600 ÷ 20 = ______)

six HUNDRED ÷ three TENS = ______ TENS (600 ÷ 30 = ______)

six HUNDRED ÷ six TENS = ______ TENS (600 ÷ 6 = ______)

seven HUNDRED ÷ one TEN = ______ TENS (700 ÷ 10 = ______)

seven HUNDRED ÷ seven TENS = ______ TENS (700 ÷ 70 = ______)

eight HUNDRED ÷ eight TENS = ______ TENS (800 ÷ 10 = ______)

eight HUNDRED ÷ two TENS = ______ TENS (800 ÷ 20 = ______)

Mathematician:____

"I build numbers in 3 different ways from base ten thousands, hundreds, tens and ones."

Number	Thousands	Hundreds	Tens	Ones
124				
302				
180				
75				
42				
107				

Mathematician:____

"I build numbers in 3 different ways from base ten thousands, hundreds, tens and ones."

Number	Thousands	Hundreds	Tens	Ones
783				
1,021				
382				
206				
200				
14				

Mathematician:______________________________________

"I wrote the numbers represented by the base ten blocks as they appeared."

Times the Cover was Moved	Words	Numeral
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Mathematician:________________________________

"I wrote the numbers represented by the base ten blocks as they appeared."

Times the Cover was Moved	Words	Numeral
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Mathematician:____

"I did these subtractions and checked by adding."

SUBTRACTION

□	▯	▫
	2	1
−	1	6

CHECKS

□	▯	▫

□	▯	▫
1	0	4
−	8	6

□	▯	▫

□	▯	▫
1	2	1
−	3	0

□	▯	▫

Mathematician:____

"I did these subtractions and checked by adding."

SUBTRACTION

□	▯	▫
 −	8 2	7 8

CHECKS

□	▯	▫

□	▯	▫
3 −	0 9	5 9

□	▯	▫

□	▯	▫
2 − 1	1 8	4 7

□	▯	▫

Mathematician:____

"I did these additions and checked by subtracting."

ADDITION

□	▯	▫
1	4	5
+ 1	4	3

□	▯	▫
1	0	8
+	9	6

□	▯	▫
	8	7
+	5	9

CHECKS

□	▯	▫

□	▯	▫

□	▯	▫

Mathematician:________________________________

"I did these additions and checked by subtracting."

ADDITION

□	▯	▫
	2	9
+	8	4

CHECKS

□	▯	▫

□	▯	▫
	3	6
+ 1	0	9

□	▯	▫

□	▯	▫
1	2	6
+ 2	0	7

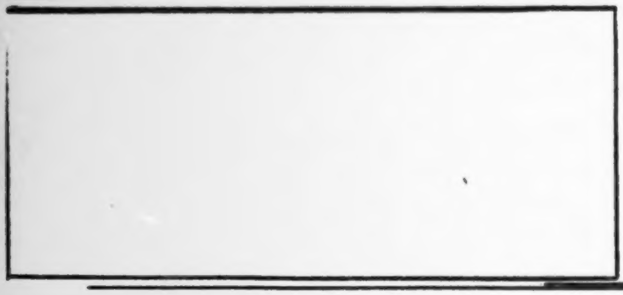
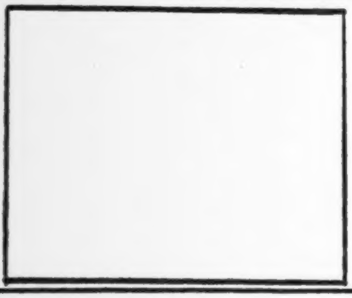
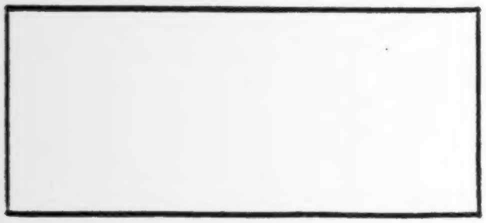
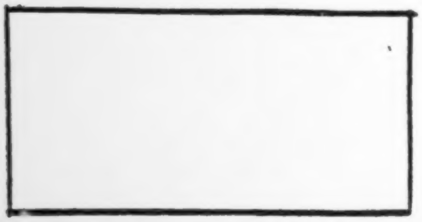
□	▯	▫

X

÷

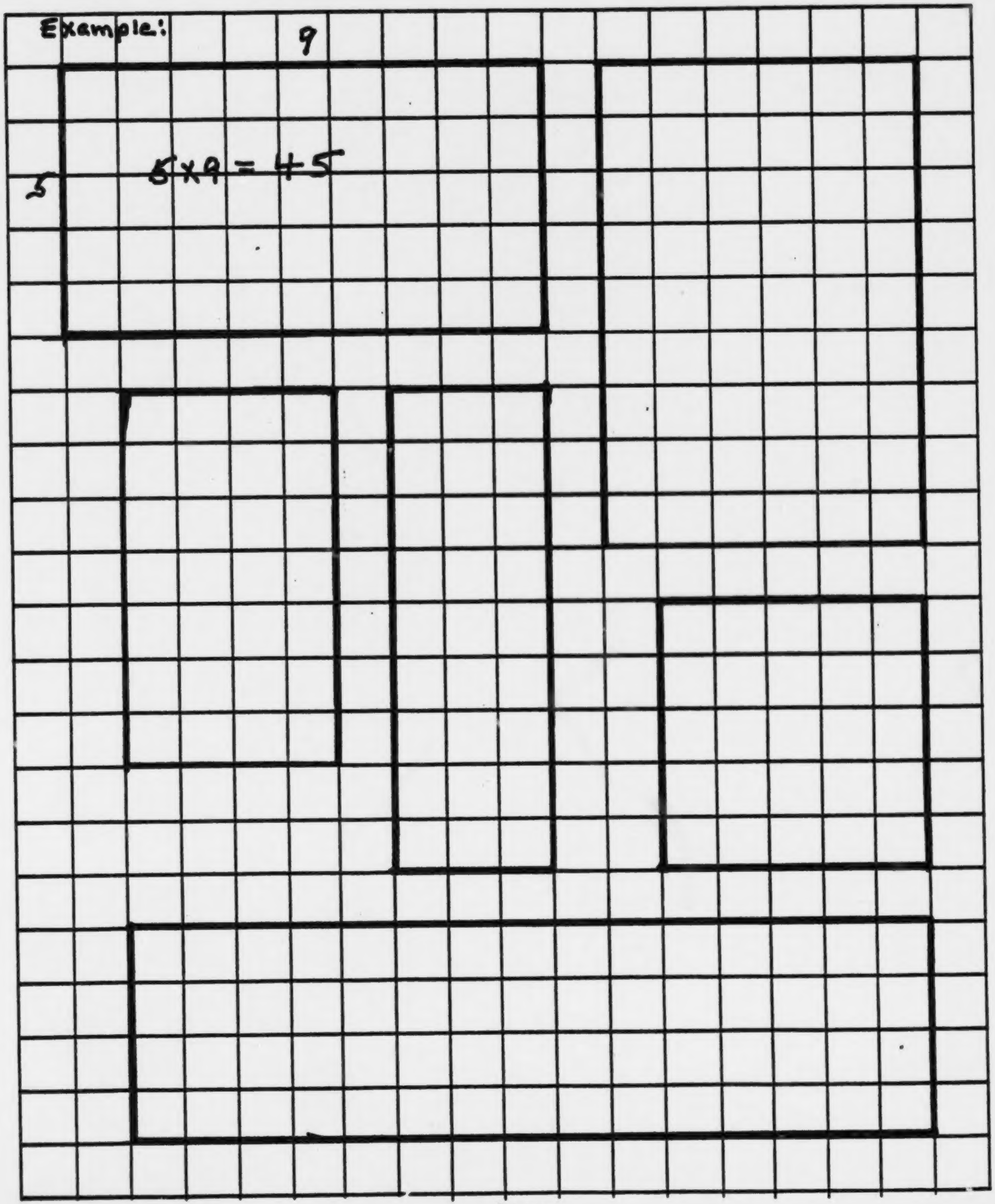
MATHEMATICIAN: ______________________________

"I filled in the rectangles with base ten pieces, using the biggest pieces that fit first."

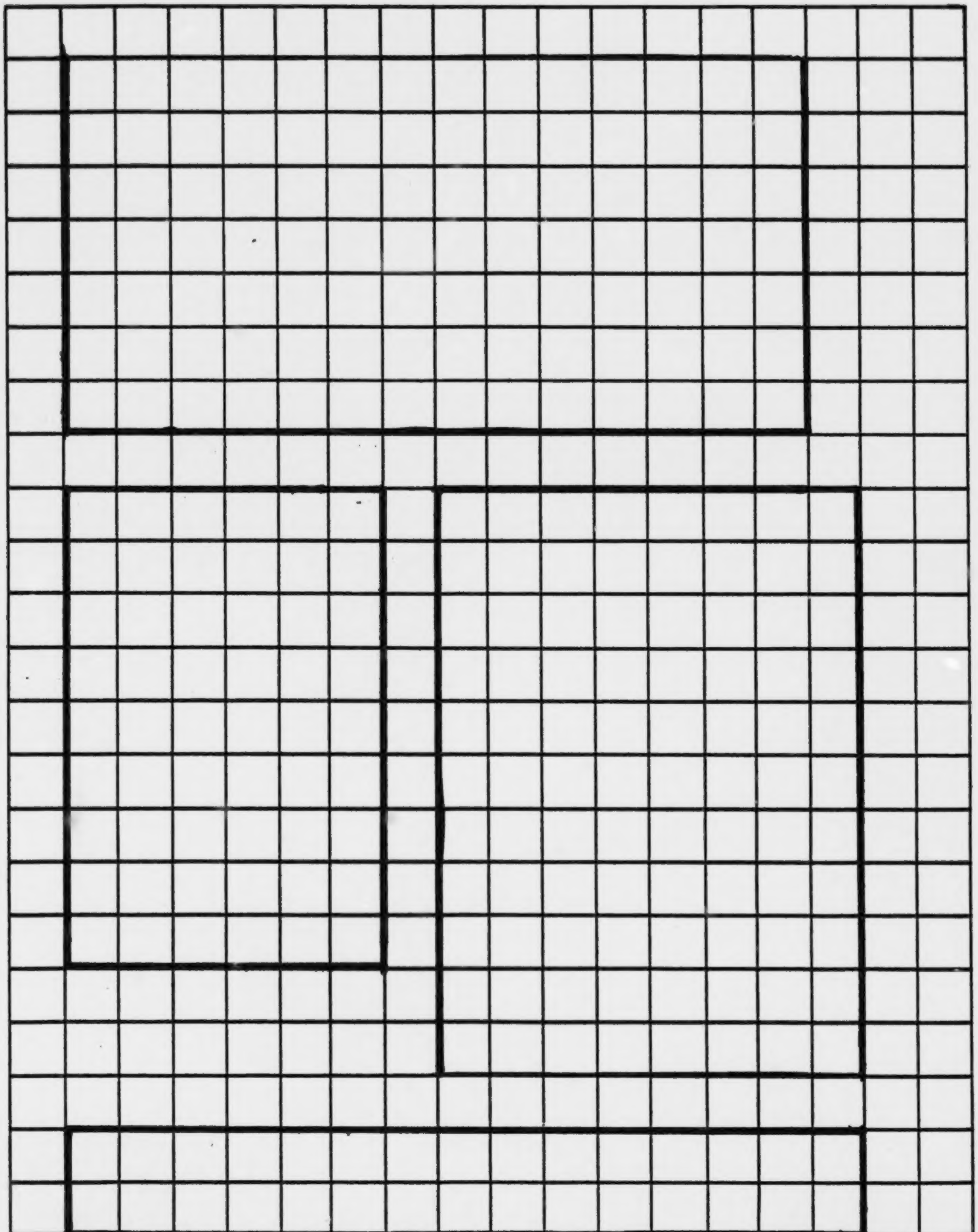
RECTANGLES	ROWS (SIDE 1)	COLUMNS (SIDE 2)	TOTAL SQUARE UNITS
			
			
			
			

MATHEMATICIAN:____

"I found the products as shown by the areas of the rectangles for these multiplications. I wrote the numbers to show the lengths of the sides and the number sentence to show the multiplication."

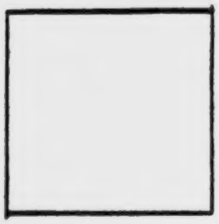
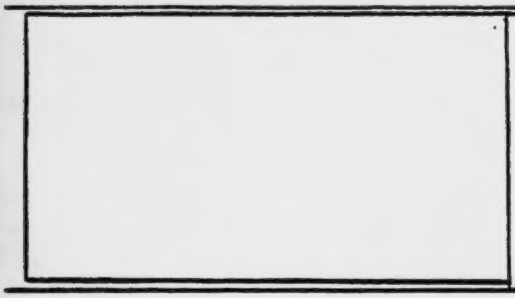
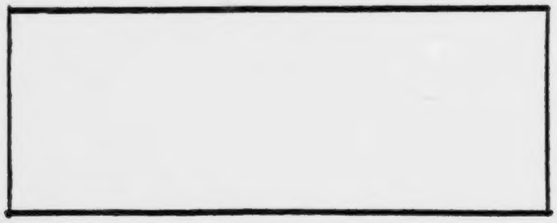
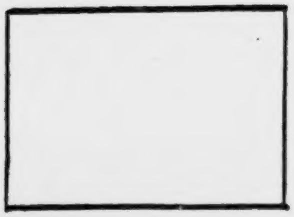


MATHEMATICIAN:____



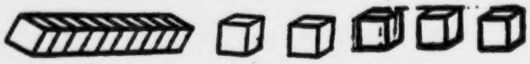
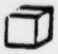
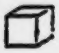
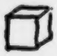
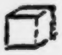
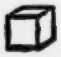
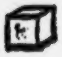
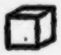
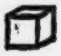
MATHEMATICIAN:________________________________

"I filled in the rectangles with base ten pieces, using the biggest pieces that fit first."

RECTANGLES	ROWS (SIDE 1)	COLUMNS (SIDE 2)	TOTAL SQUARE UNITS
			
			
			
			

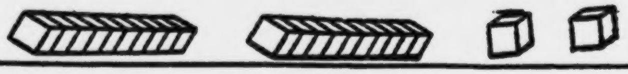
Mathematician:____

"I multiplied the number given by each number down the side by arrangement base ten blocks on the workmat."

X		
1		
2		
3		
4		
5		
6		
7		
8		
9		

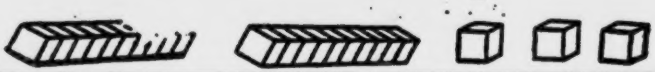
Mathematician:______________________________

"I multiplied the number given by each number down the side by arrangement base ten blocks on the workmat."

X		
1		
2		
3		
4		
5		
6		
7		
8		
9		

Mathematician:________________________________

"I multiplied the number given by each number down the side by arrangement base ten blocks on the workmat."

X		
1		
2		
3		
4		
5		
6		
7		
8		
9		

Mathematician:______________________________________

"I found the partial products in the graph rectangles and added these to find the products."

I.

	TENS	ONES
A=		
B=		
A+B=		

II.

	TENS	ONES
A=		
B=		
A+B=		

III.

	TENS	ONES
A=		
B=		
A+B=		

IV.

	TENS	ONES
A=		
B=		
A+B=		

V.

	TENS	ONES
A=		
B=		
A+B=		

VI.

	TENS	ONES
A=		
B=		
A+B=		

VII.

	TENS	ONES
A=		
B=		
A+B=		

VIII.

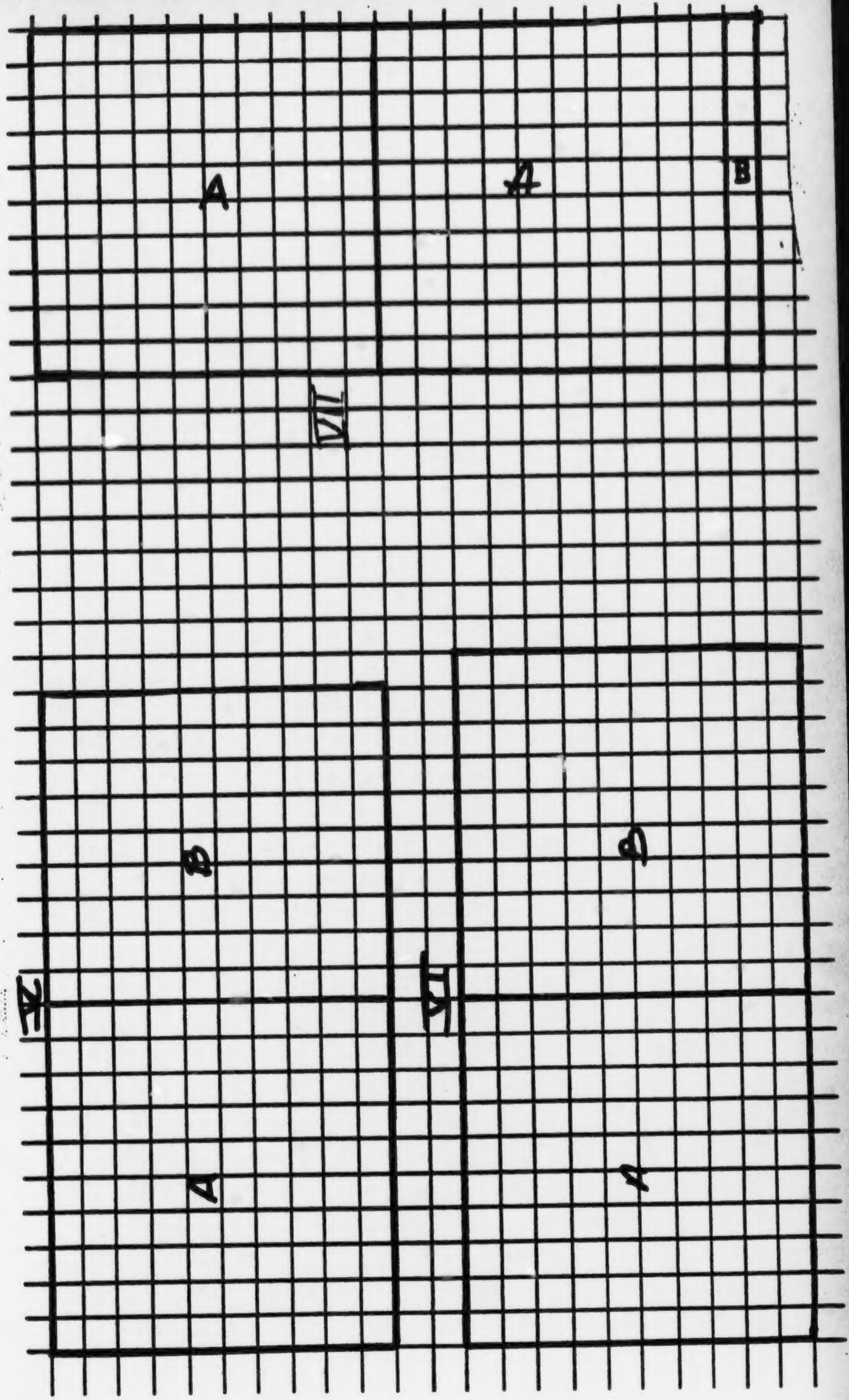
	TENS	ONES
A=		
B=		
A+B=		

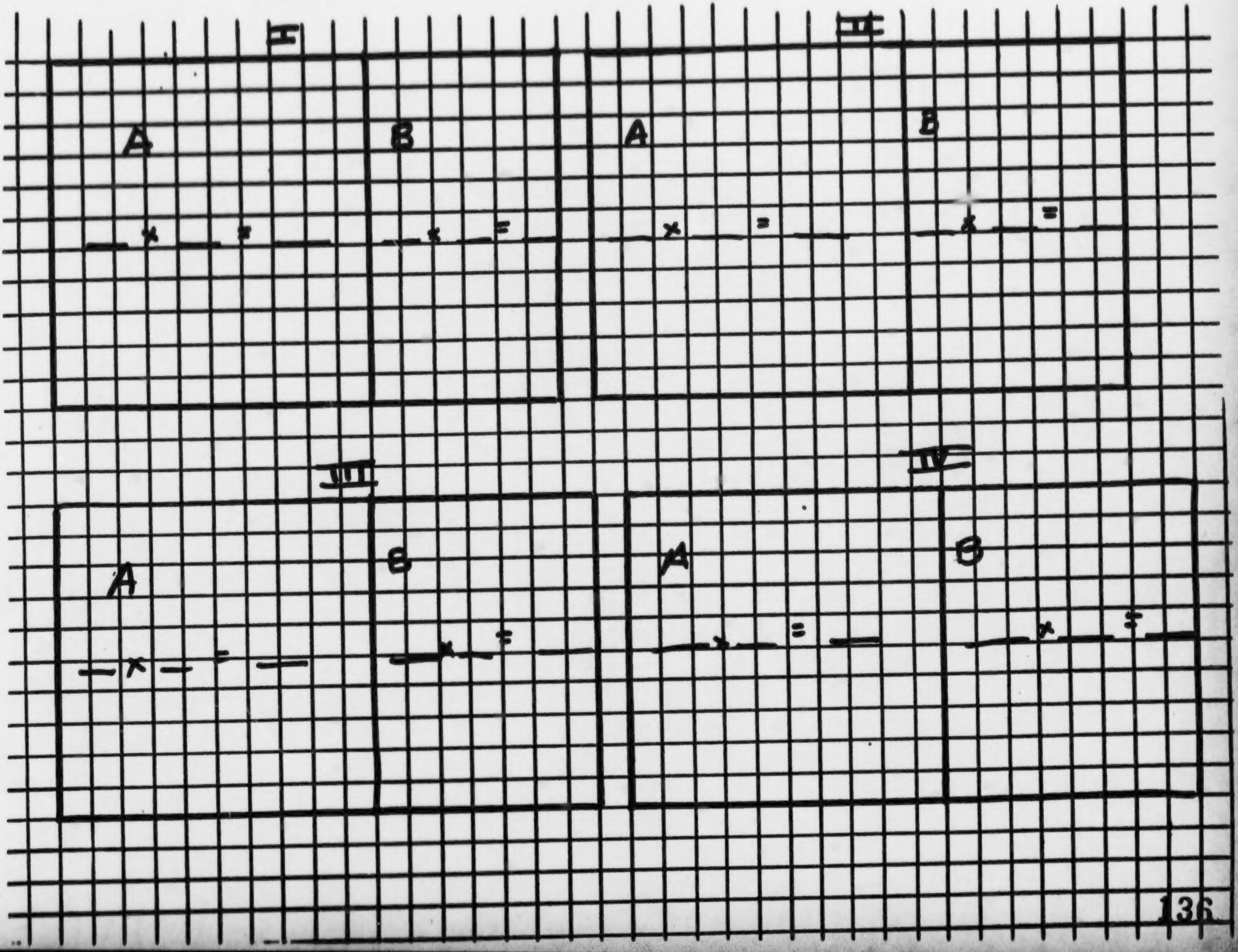
IX.

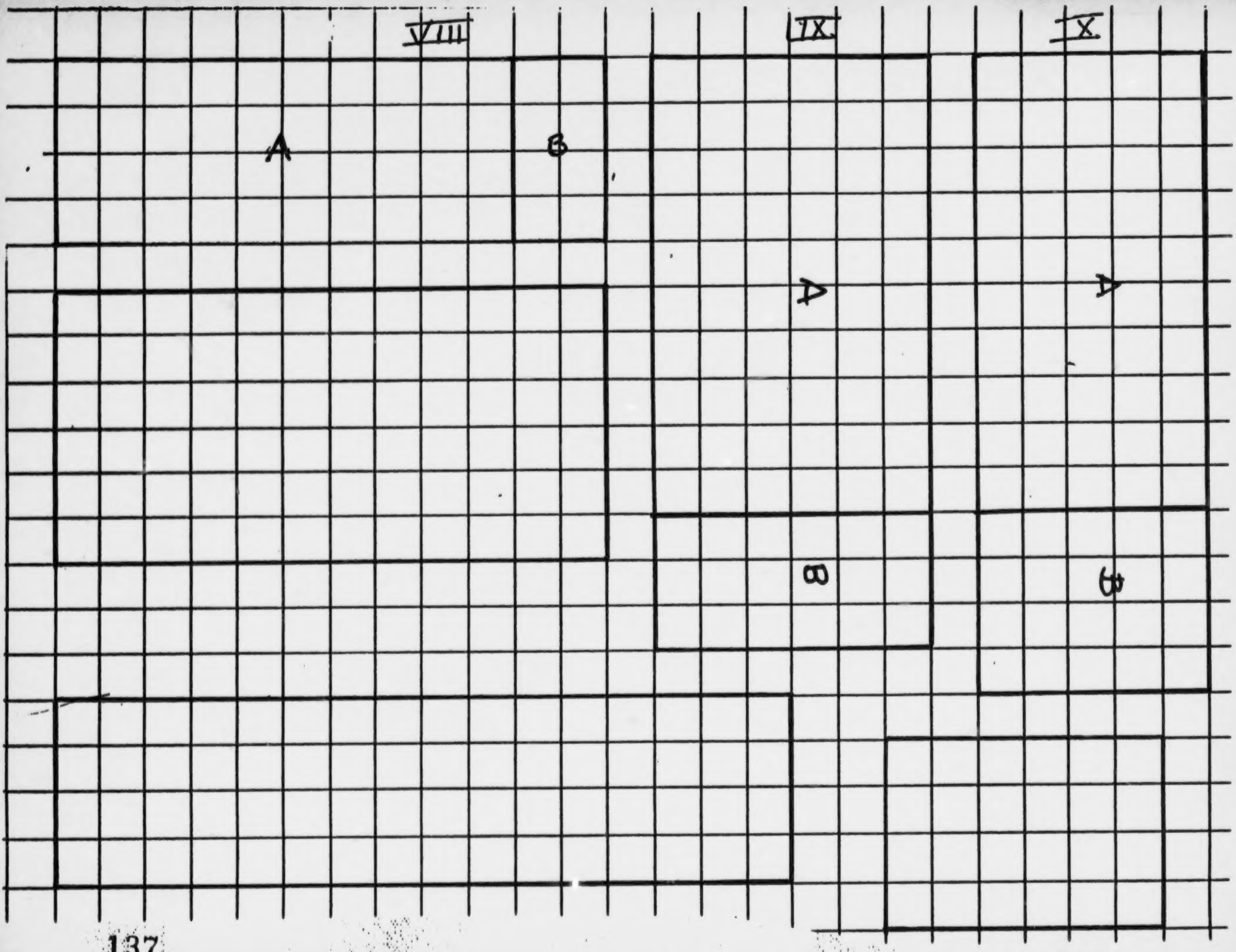
	TENS	ONES
A=		
B=		
A+B=		

X.

	TENS	ONES
A=		
B=		
A+B=		

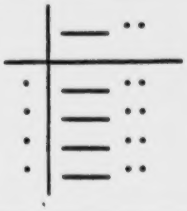

A
A
B
VII
B
B
V
VI
A
A


I
A
B
__ x __ = __
__ x __ = __
II
A
B
__ x __ = __
__ x __ = __
III
A
B
__ x __ = __
__ x __ = __
IV
A
B
__ x __ = __
__ x __ = __


VIII
A
B
IX
A
B
X
A
B

Mathematician:____

"I built rectangles from base ten blocks on the workmat to do these multiplications."

PROBLEM	PICTURE	H	T	O
12x4			4 + 4	0 8 8
13x3				
12x6				
14x5				
13x6				
12x7				

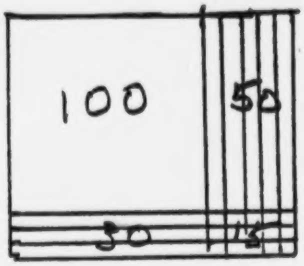
Mathematician:____

"I used base ten blocks or graph paper to do these multiplications and completed the expanded forms."

23 = 20 + 3 x17 = 10 + 7	44 = 40 + 4 x26 = 20 + 6	26 x24
16 x29	35 x52	27 x33
28 x 43 = ____	17 x 18 = _____	15 x 27 = _____

Mathematician:____________________________________

"For these multiplications, I drew the rectangles, found and recorded the partial products and wrote the problem in expanded form."

Problem	Partial Products	Expanded Forms
Example: 15 ×13 100 50 30 15 195		(10+5)(10+3) = 100 + 50 + 30 + 15 100 + 80 + 15 195
21 ×14		
19 ×12		
16 ×16		

Mathematician: ____________________

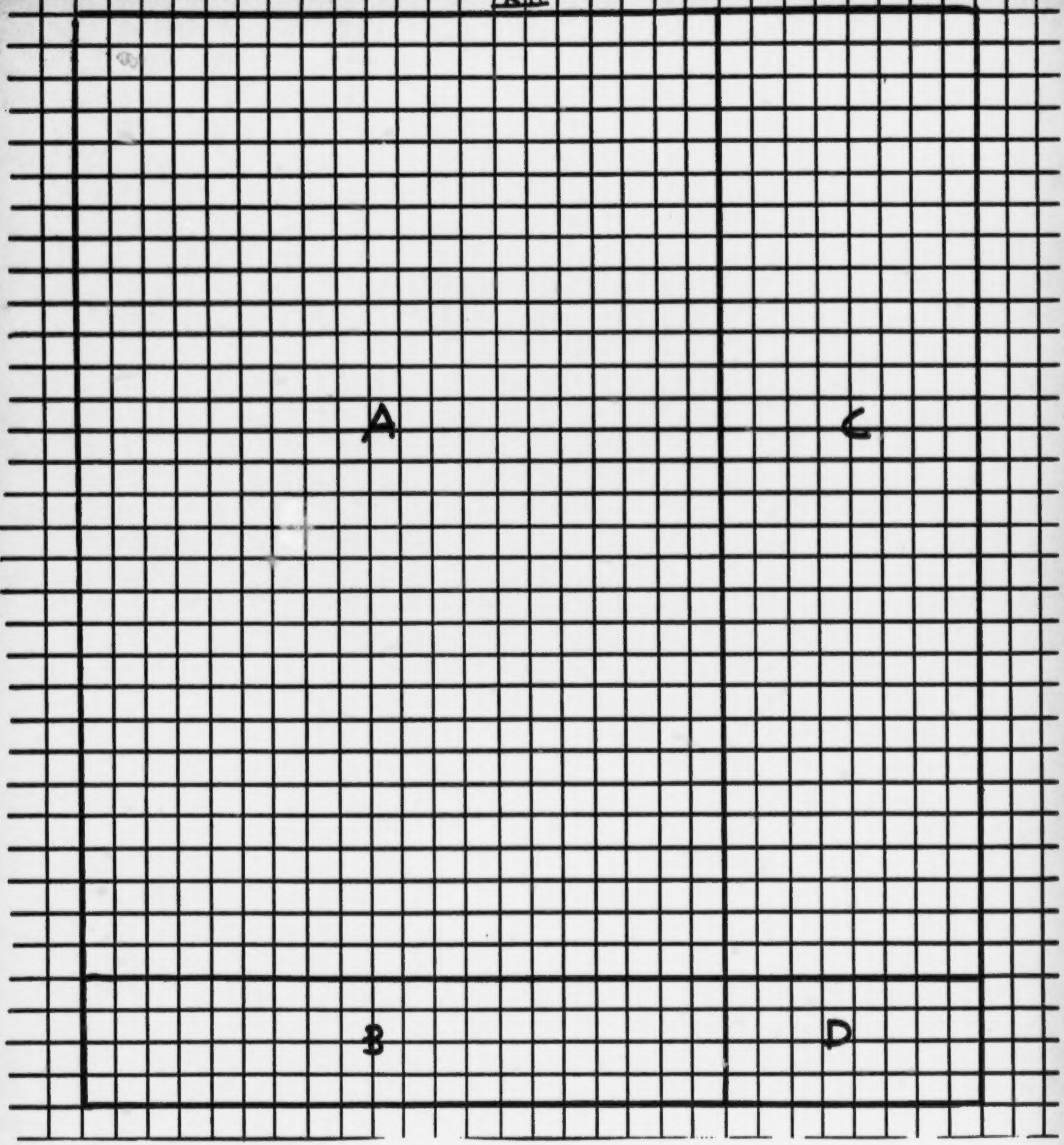
Problem	Partial Products	Expanded Forms
24 ×13		
19 ×14		
17 ×12		
14 ×18		

Mathematician:____

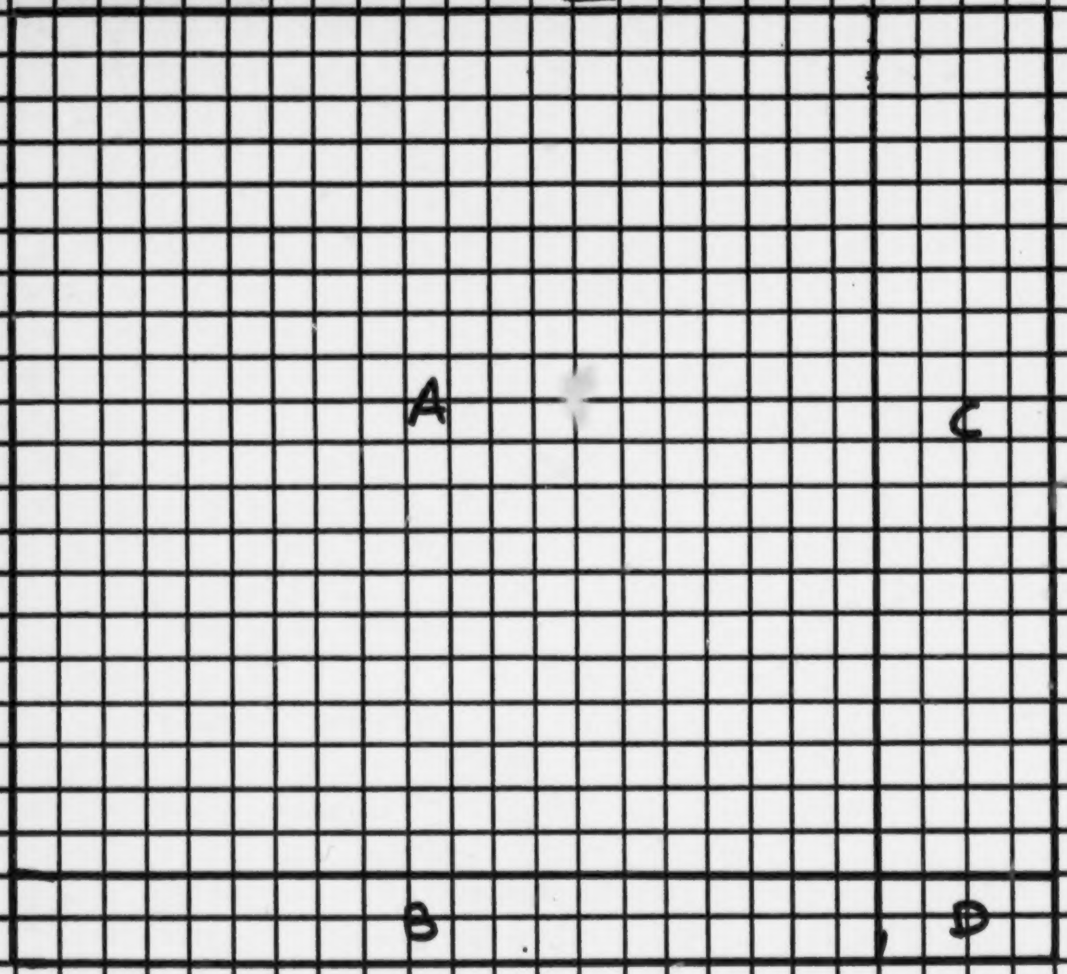
"I found the partial products and the total product for the multiplications given on the graph paper."

RECTANGLE	LENGTH x WIDTH	PARTIAL PRODUCTS				TOTAL PRODUCT
		A	B	C	D	
I						
II						
III						
IV						
V						
VI						
VII						
VIII						
IX						
X						
XI						
XII						

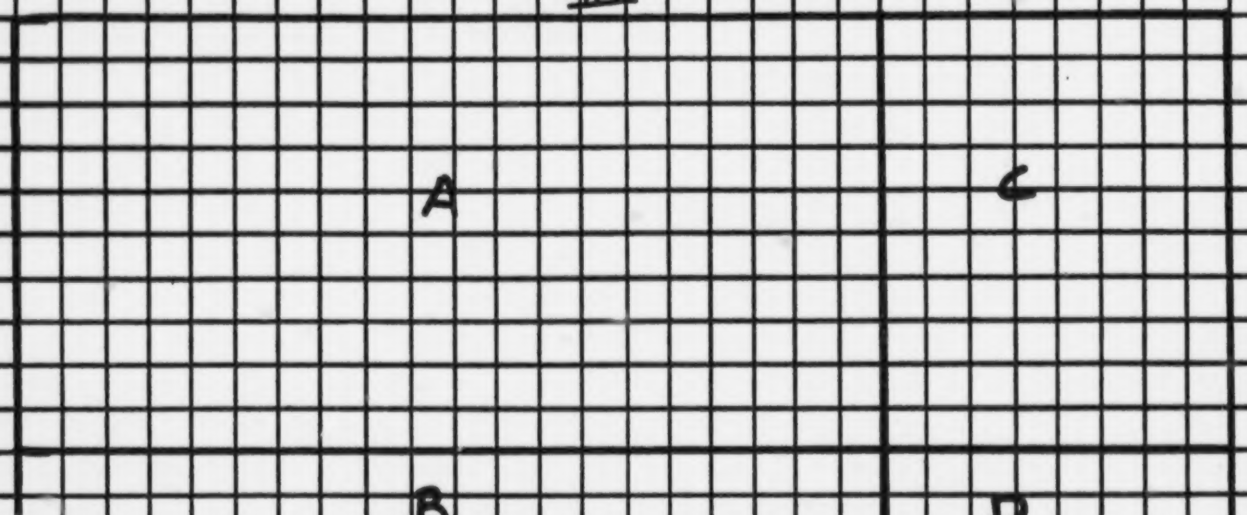
IXIII



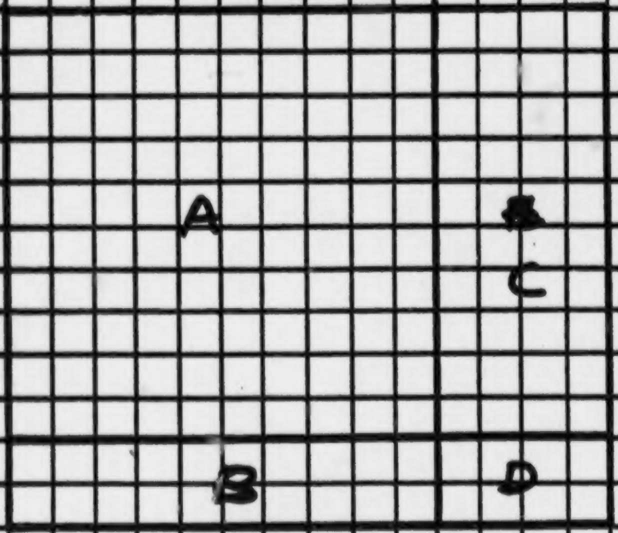
IX



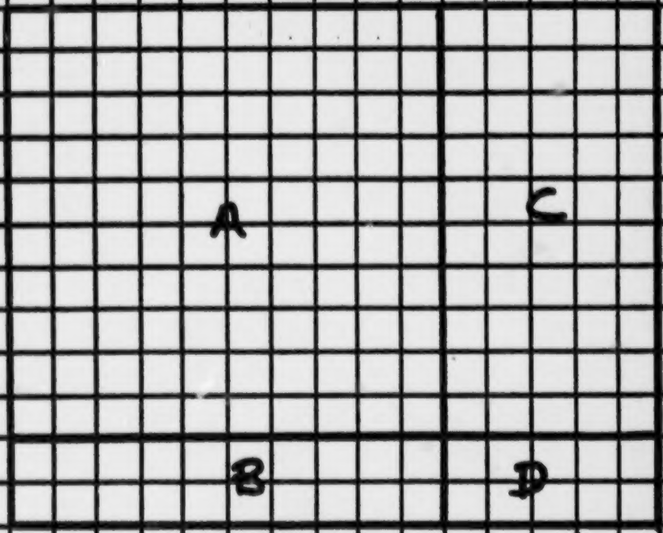
XI



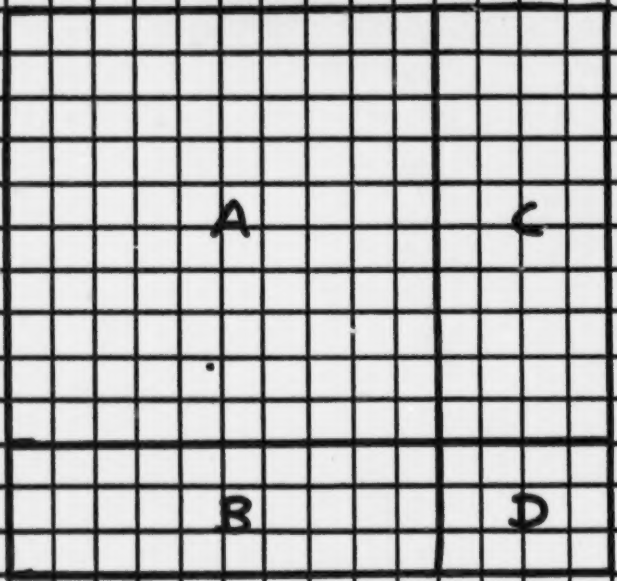
VI



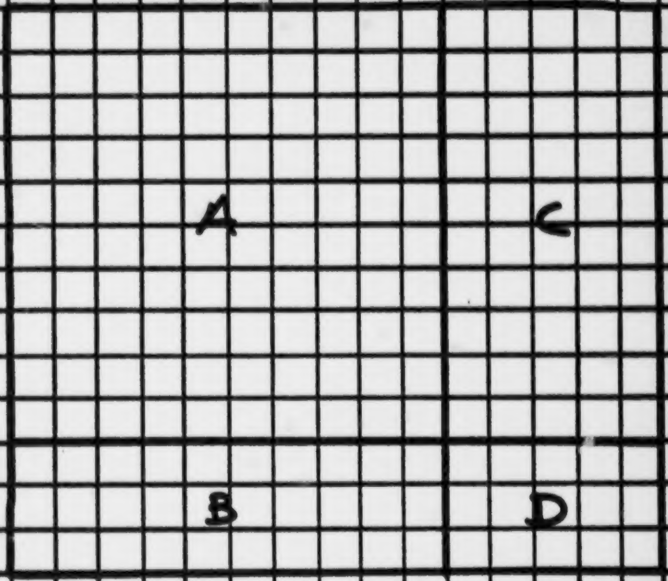
VII

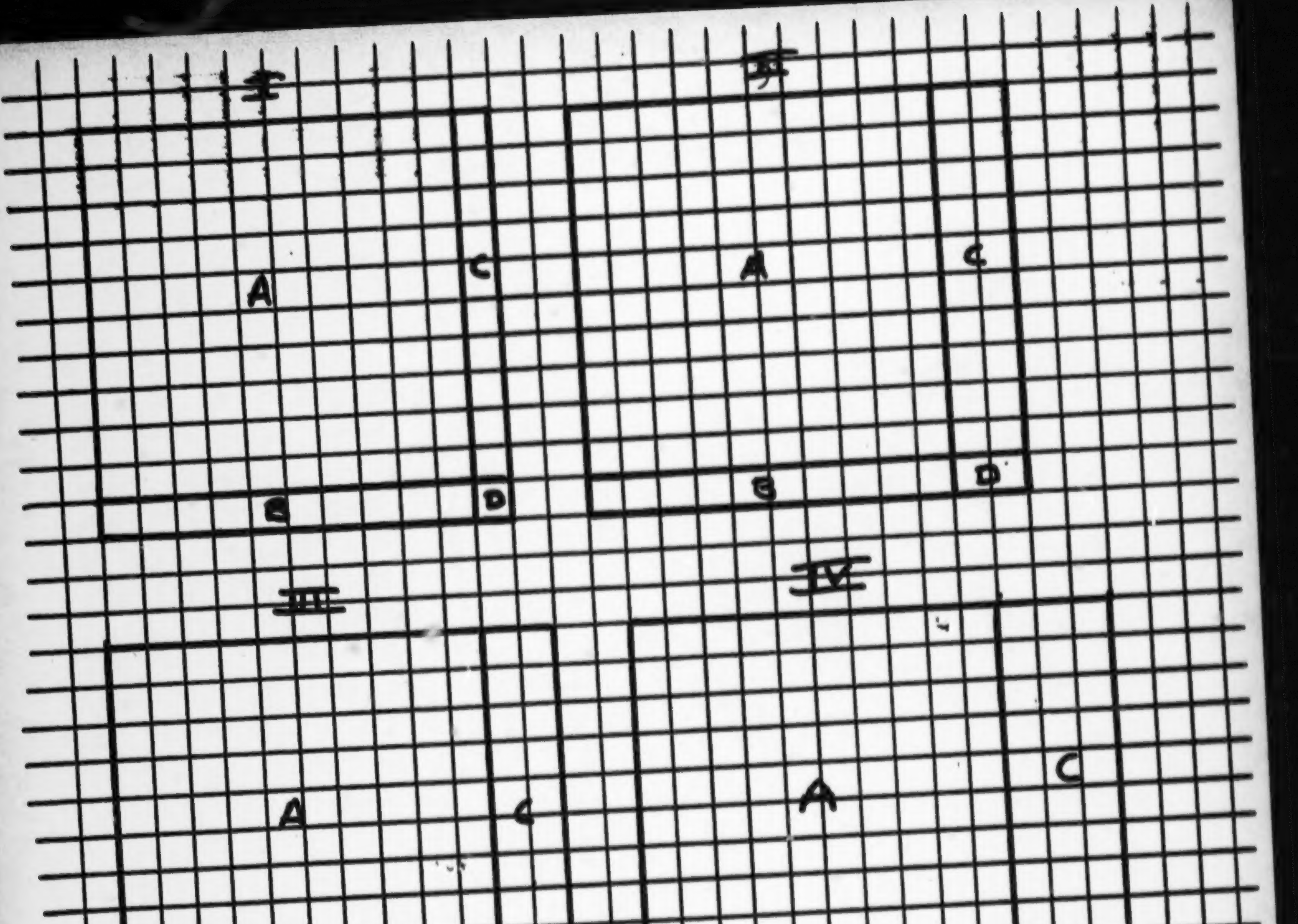


VIII



IX




I
A
C
B
D
II
A
C
B
D
III
A
C
B
D
IV
A
C
B
D
V
A
B

Mathematician:____

"I built rectangles from base ten blocks on the workmat to do these multiplications."

PROBLEM	RECORD H	T	O	PROBLEM	RECORD H	T	O
12 × 14				$\begin{array}{r} 12 \\ \times 14 \\ \hline \end{array}$			
13 × 21				$\begin{array}{r} 22 \\ \times 16 \\ \hline \end{array}$			
15 × 22				$\begin{array}{r} 24 \\ \times 13 \\ \hline \end{array}$			
12 × 31				$\begin{array}{r} 23 \\ \times 21 \\ \hline \end{array}$			
23 × 21				$\begin{array}{r} 24 \\ \times 17 \\ \hline \end{array}$			

Mathematician:______________________________________

"I built rectangles from base ten blocks on the workmat to do these multiplications."

PROBLEM	RECORD			PROBLEM	RECORD		
	H	T	O		H	T	O
21 ×35				18 × 32			
35 ×25				21 × 33			
20 ×19				31 × 31			
23 ×27				25 × 20			
32 ×26				19 × 36			

Mathematician:____

"I used base ten blocks on graph paper to do these multiplications. I made a picture of the rectangle made showing partial products. I completed the computation form and wrote the multiplication in expanded form."

Problem	Partial Products	Expanded Forms
21 × 19		
32 × 32		
28 × 21		
31 × 23		

Mathematician:____

"I used base ten blocks on graph paper to do these multiplications. I made a picture of the rectangle made showing partial products. I completed the computation form and wrote the multiplication in expanded form."

Problem	Partial Products	Expanded Forms
15 ×20		
16 ×21		
19 ×18		
21 ×23		

Mathematician: ____

"I used base ten blocks on graph paper to do these multiplications.
I made a picture of the rectangle made showing partial products. I completed
the computation form and wrote the multiplication in expanded form."

Problem	Partial Products	Expanded Forms
28 x 31		
42 x 18		
33 x 22		
28 x 32		

Mathematician:____

"I made rectangles on the graph paper to do the multiplications. I recorded all partial products and added them to find the product."

	HUNDREDS	TENS	ONES
		2	8
		1	7
A =			
B =			
C =			
D =	+		

		3	2
		2	4
A =			
B =			
C =			
D =	+		

		1	6
		4	4
A =			
B =			
C =			
D =	+		

	HUNDREDS	TENS	ONES
		5	2
		2	6
A =			
B =			
C =			
D =	+		

		3	4
		4	3
A =			
B =			
C =			
D =	+		

		6	1
		2	2
A =			
B =			
C =			
D =	+		

Mathematician: ______________________________

"I made rectangles on the graph paper to do the multiplications. I recorded all partial products and added them to find the product."

	HUNDREDS	TENS	ONES
		4	5
		2	8
A =			
B =			
C =			
D =	+		

		3	0
		2	7
A =			
B =			
C =			
D =	+		

		4	1
		3	1
A =			
B =			
C =			
D =	+		

	HUNDREDS	TENS	ONES
		2	6
		1	9
A =			
B =			
C =			
D =	+		

		3	2
		4	4
A =			
B =			
C =			
D =	+		

		5	0
		1	8
A =			
B =			
C =			
D =	+		

Mathematician: ____________________

"I built rectangles from base ten blocks on the workmat to do these multiplications."

Problem	Picture of Rectangle made	Computation		
		H	T	O
14 x22		+ __		
32 x16		+ __		
17 x22		+ __		
28 x27		+ __		

Mathematician:____________________________________

"I built rectangles from base ten blocks on the workmat to do these multiplications."

Problem	Picture of Rectangle made	Computation		
		H	T	O
27 x 31		+ 		
13 x 22		+ 		
23 x 14		+ 		
26 x 21		+		

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION **RECTANGLE**

	Thousands	Hundreds	Tens	Ones
		2	0	4
			× 1	5
1.				
2.				
3.				
4.				
5.				
6.				
Total				

	Thousands	Hundreds	Tens	Ones
		1	2	1
			× 1	1
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION **RECTANGLE**

	Thousands	Hundreds	Tens	Ones
		2	2	0
			× 3	4
1.				
2.				
3.				
4.				
5.				
6.				
Total				

	Thousands	Hundreds	Tens	Ones
		1	4	4
			× 1	2
1.				
2.				
3.				
4.				
5.				
6.				
Total				

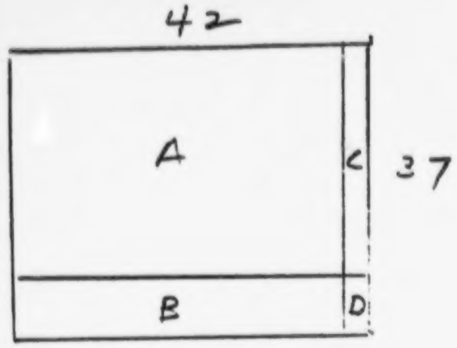
Mathematician:____

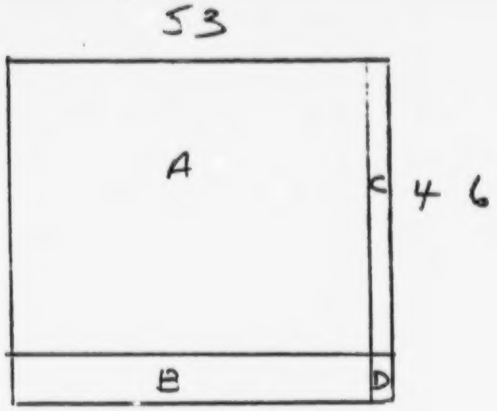
"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

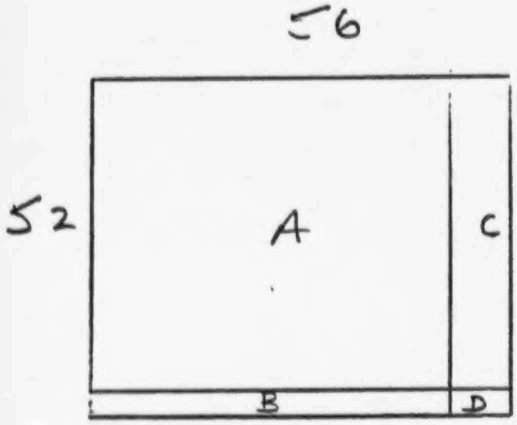
MULTIPLICATION **RECTANGLE**

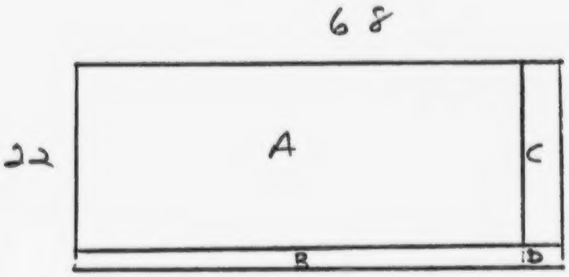
	Thousands	Hundreds	Tens	Ones
		2	2	5
			× 1	5
1.				
2.				
3.				
4.				
5.				
6.				
Total				

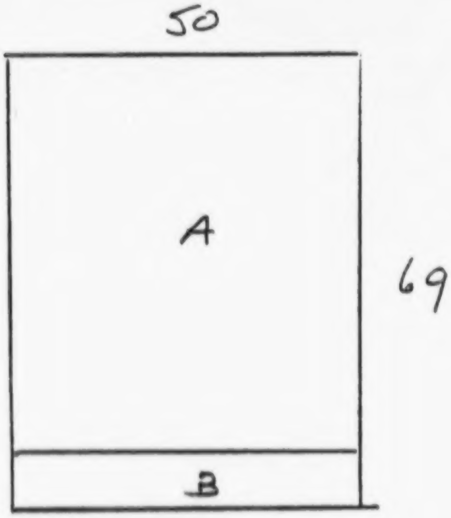
	Thousands	Hundreds	Tens	Ones
		1	6	9
			× 1	3
1.				
2.				
3.				
4.				
5.				
6.				
Total				

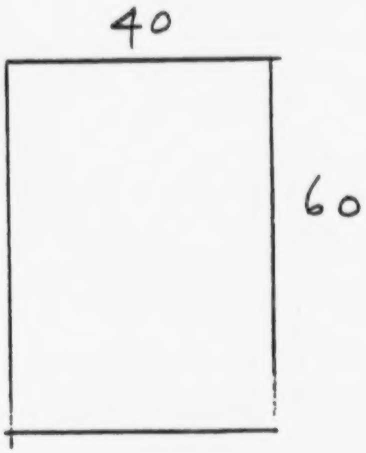

42
A
C
37
B
D

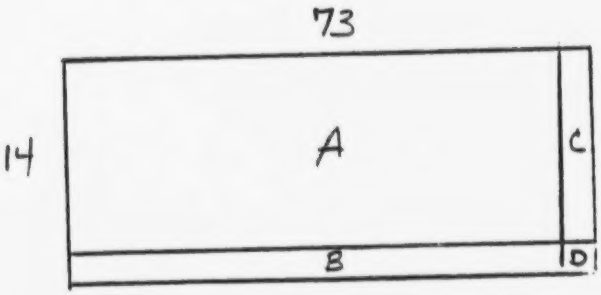

53
A
C
4 6
B
D

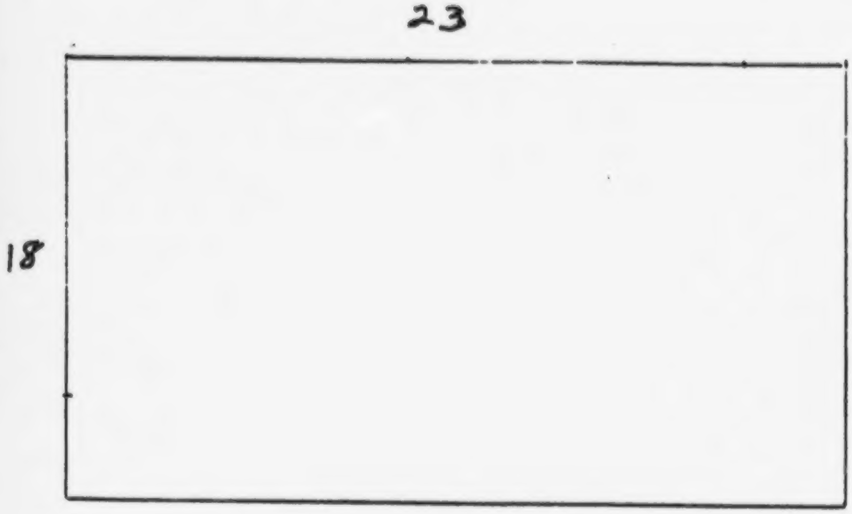

56
52
A
C
B
D

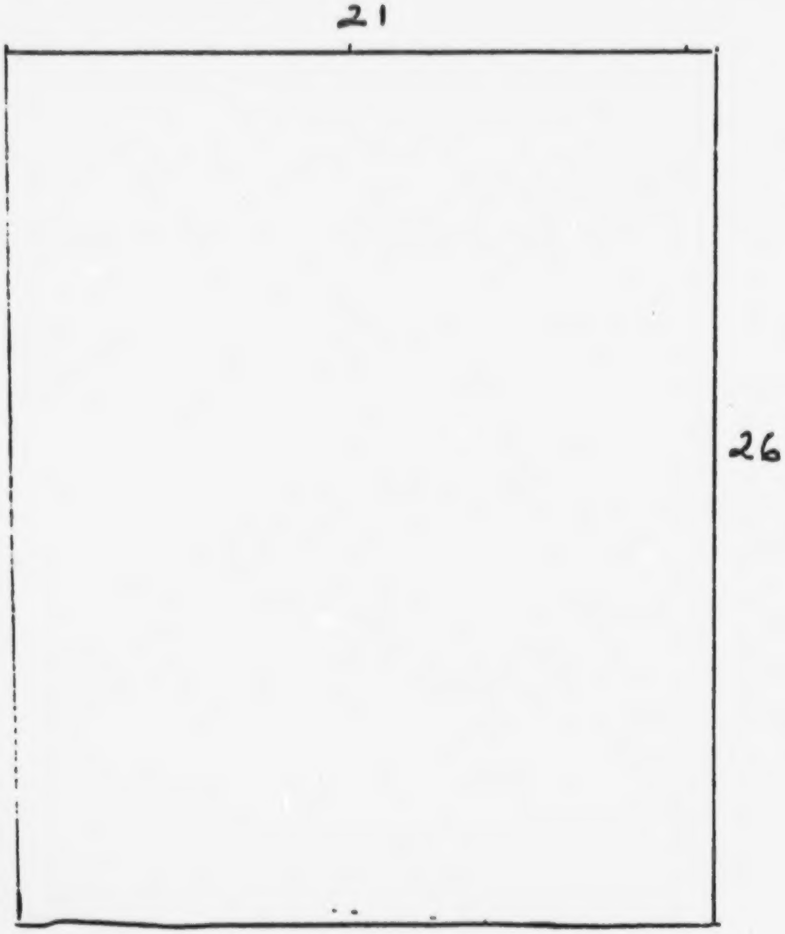

6 8
22
A
C
B
D

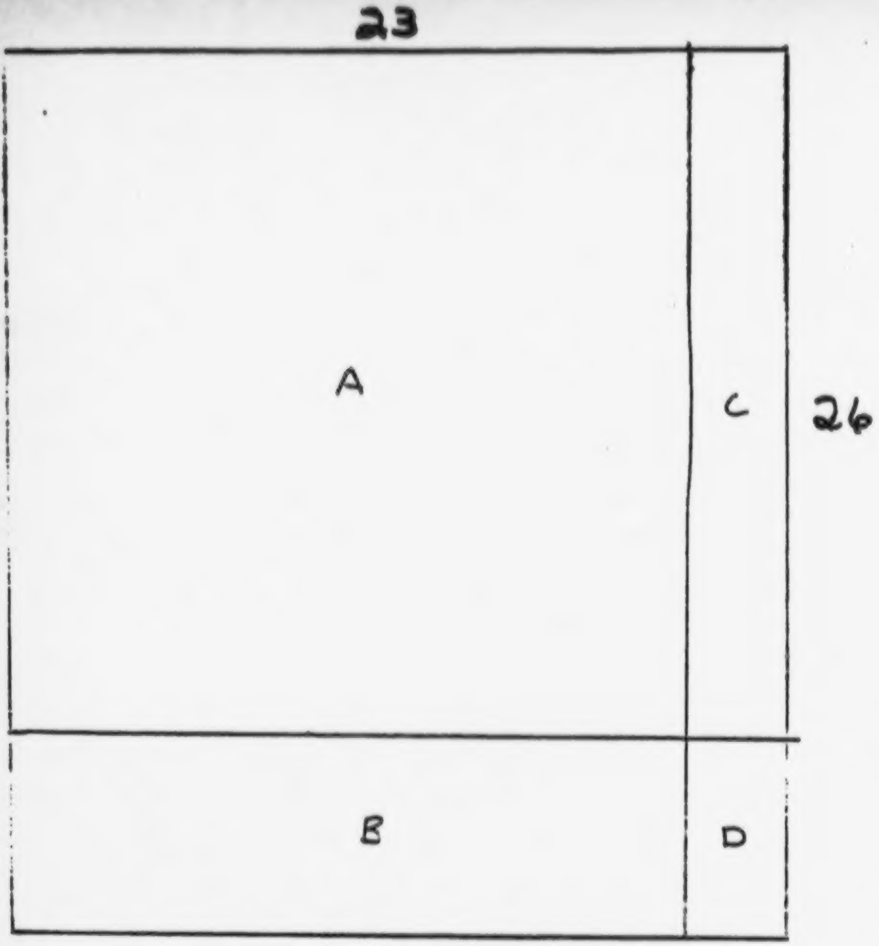

50
A
69
B

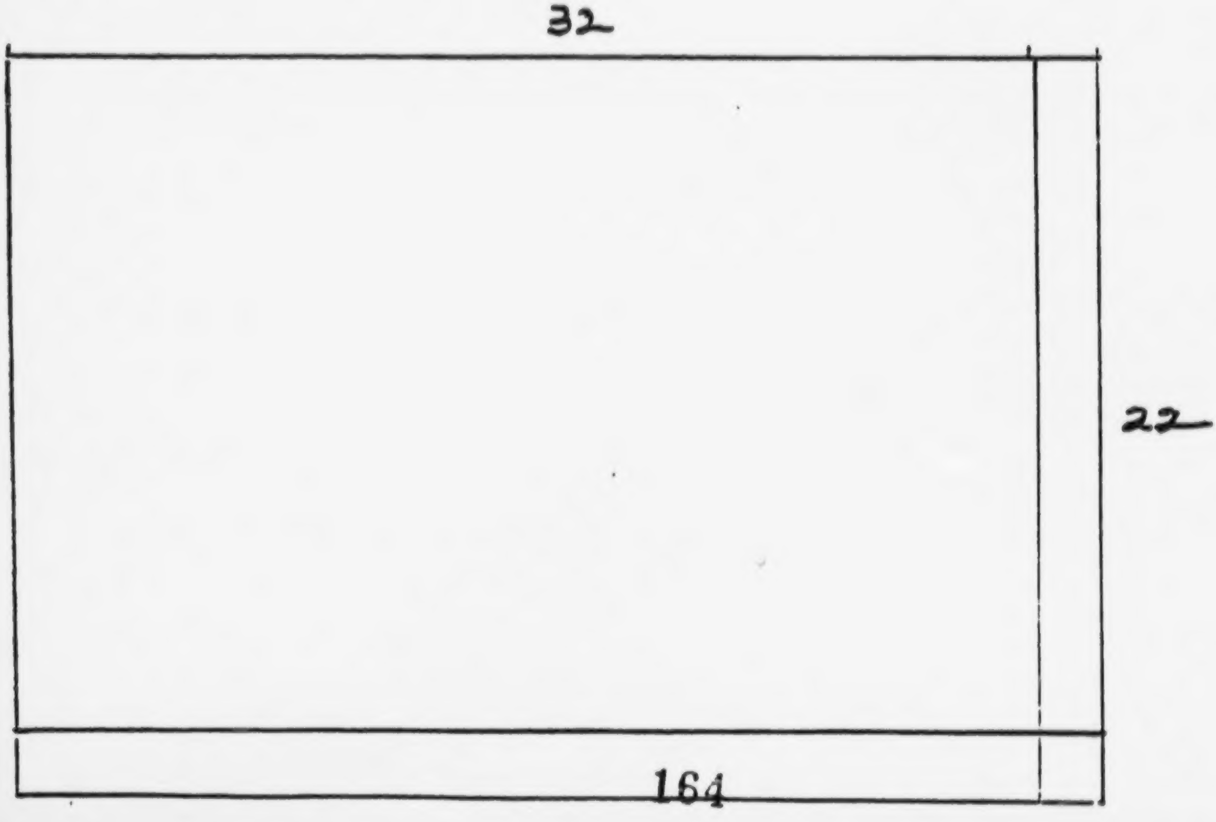

40
60


73
14
A
C
B
D


23
18


21
26


23
A
C
26
B
D


32
22

Mathematician:____

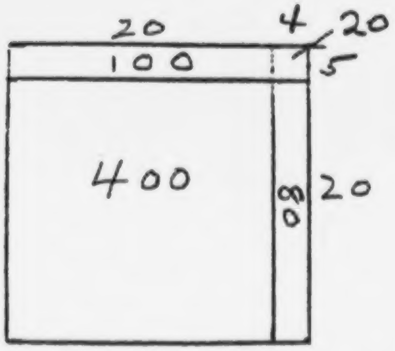
"For the rectangles given that are REDUCED IN SIZE from base ten blocks, I drew lines to show the partial products and recorded these and the answer."

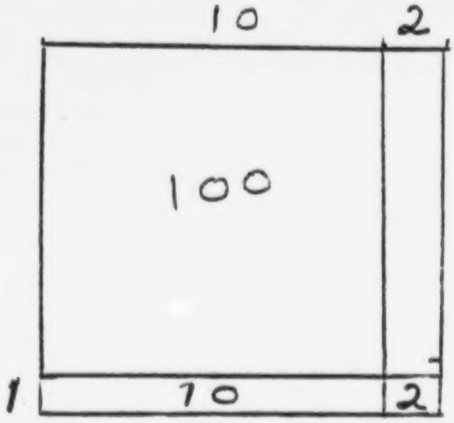
LENGTH & WIDTH OF RECTANGLES	PARTIAL PRODUCTS				TOTAL PRODUCT
	A	B	C	D	

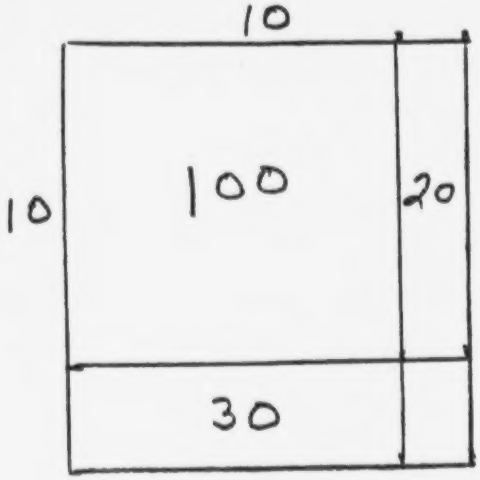
Mathematician:____

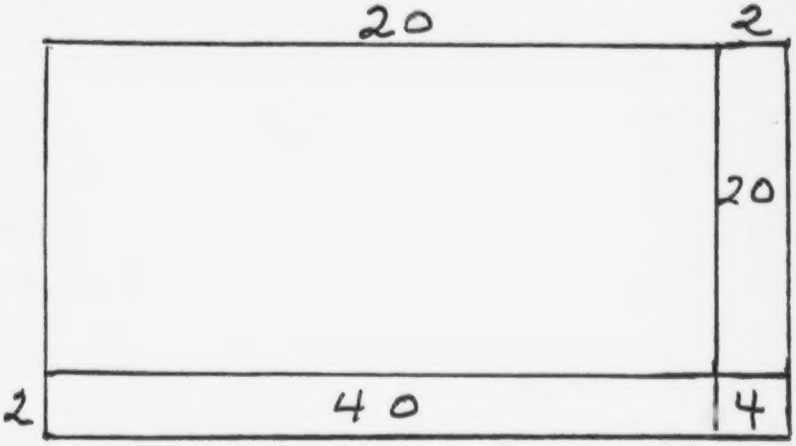
"I found and labelled the missing parts in these rectangles."

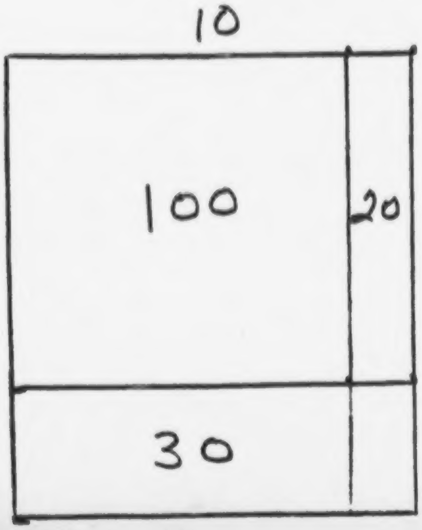
Example:

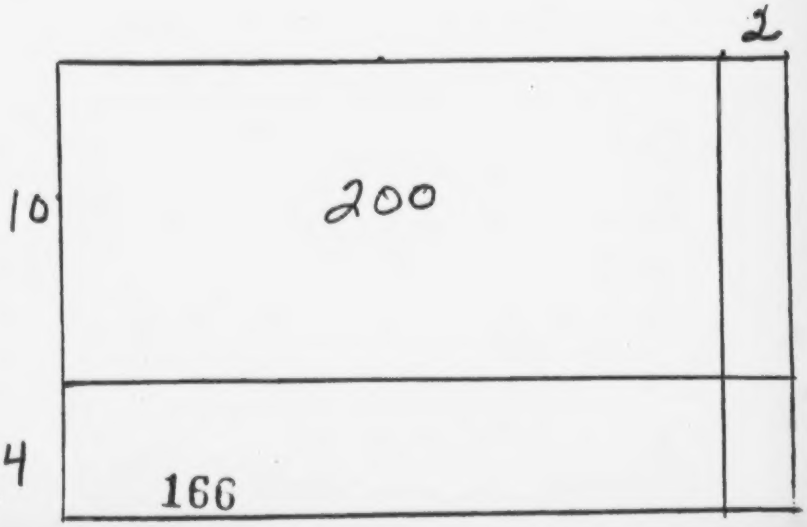

20
4
20
100
5
400
80
20


10
2
100
1
10
2


10
10
100
20
30

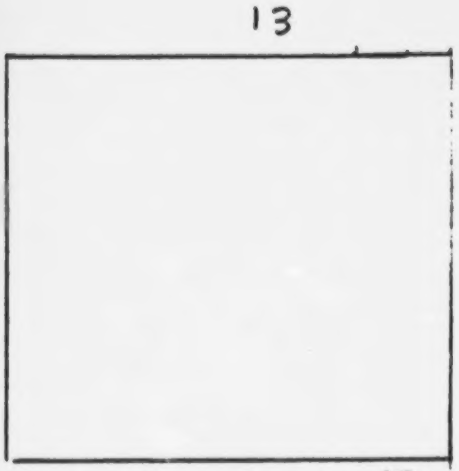




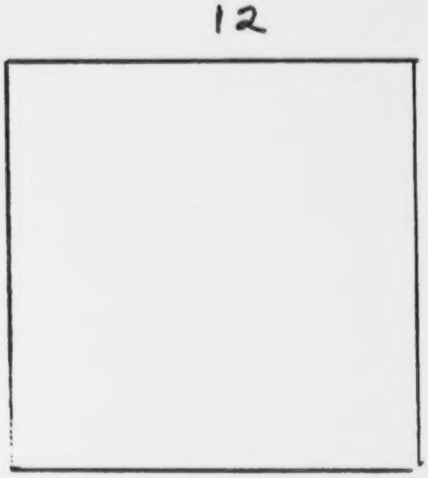


Mathematician:____

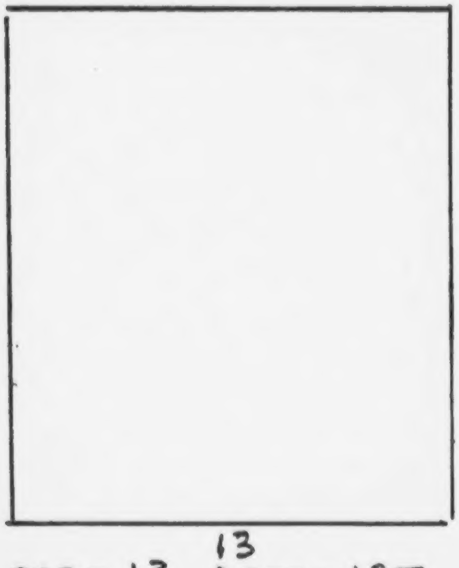
"I found the missing sides for these rectangles and put in lines to show tens and ones in the division."



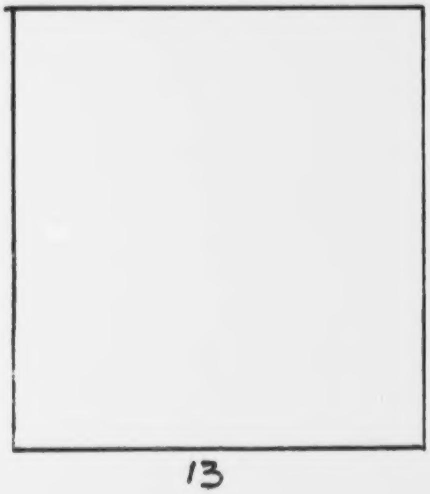
SIDE = 13 Area = 156



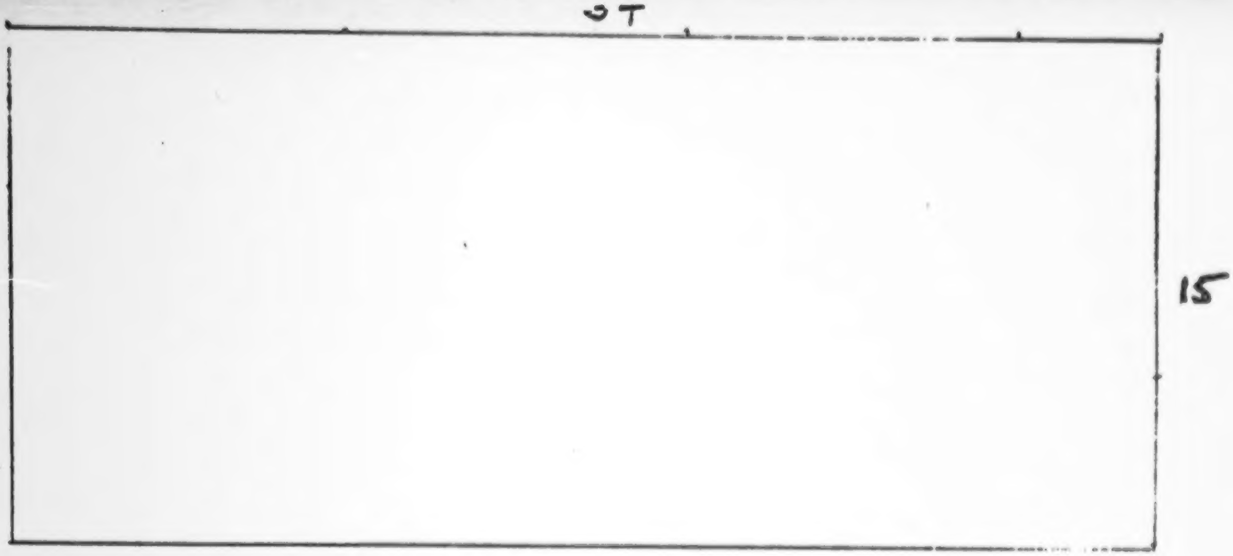
SIDE = 12 ArEA = 144

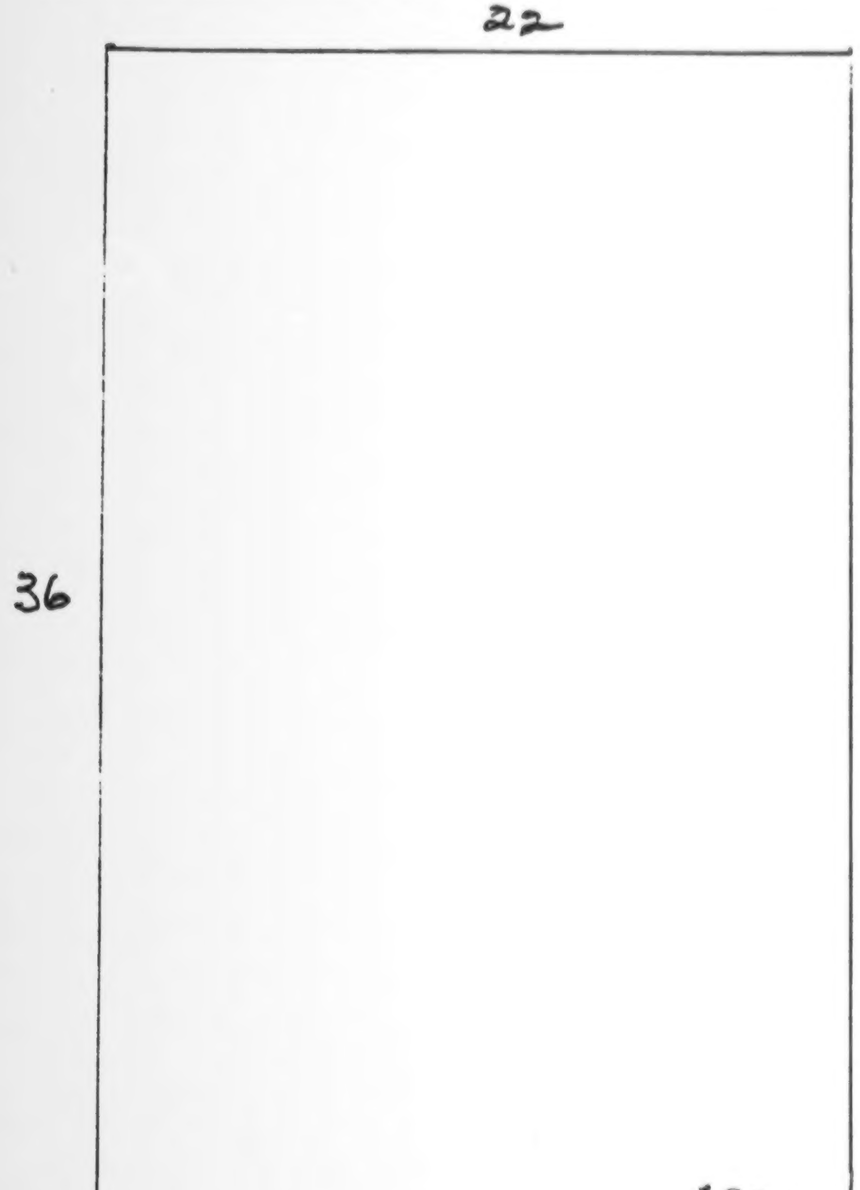


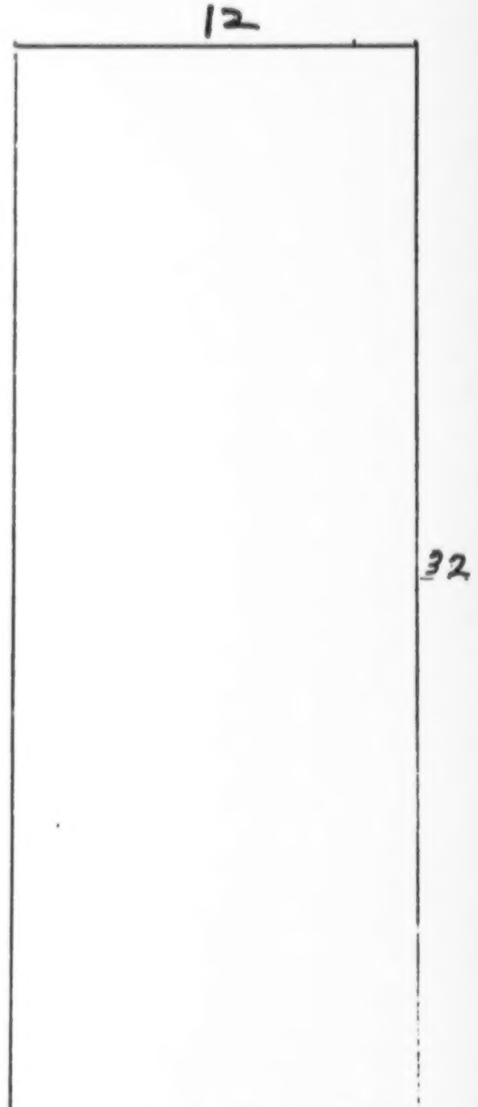
SIDE = 13 AREA = 195

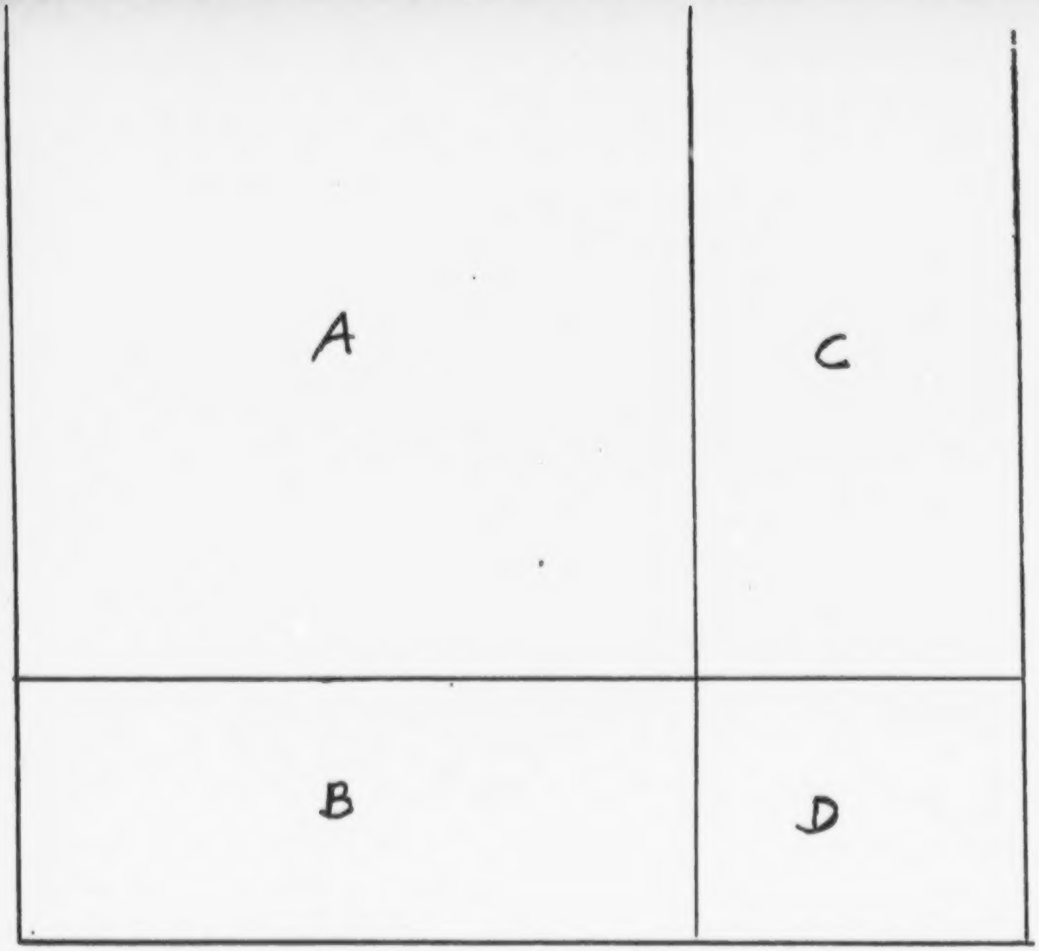


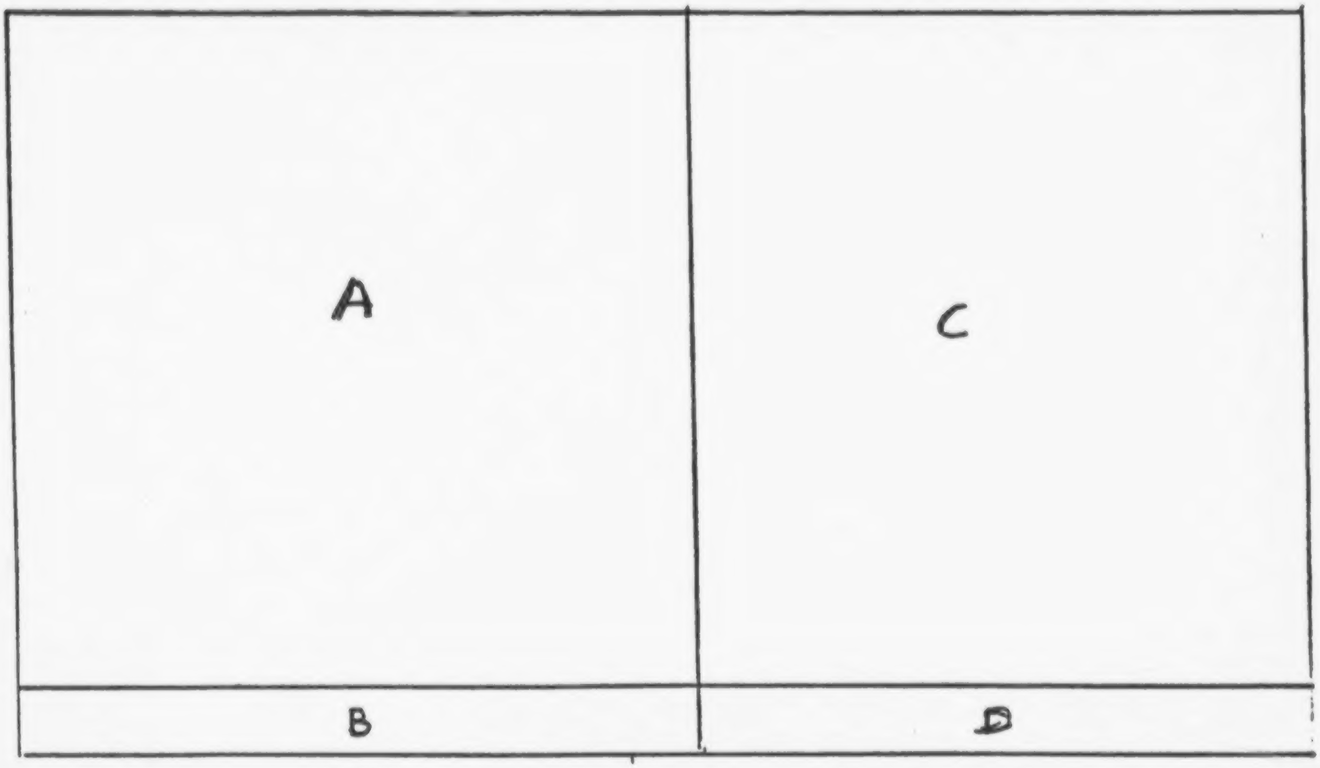
SIDE = 13 AREA = 156

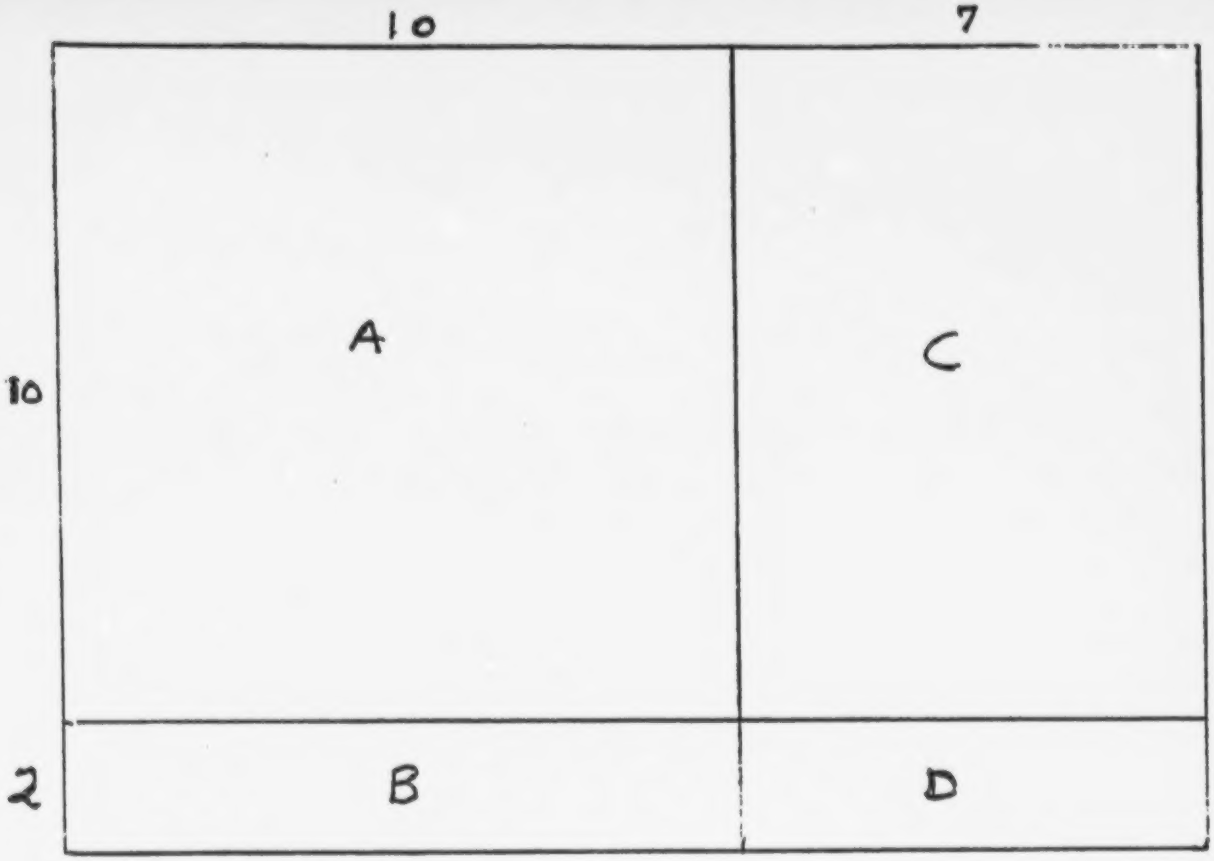

15

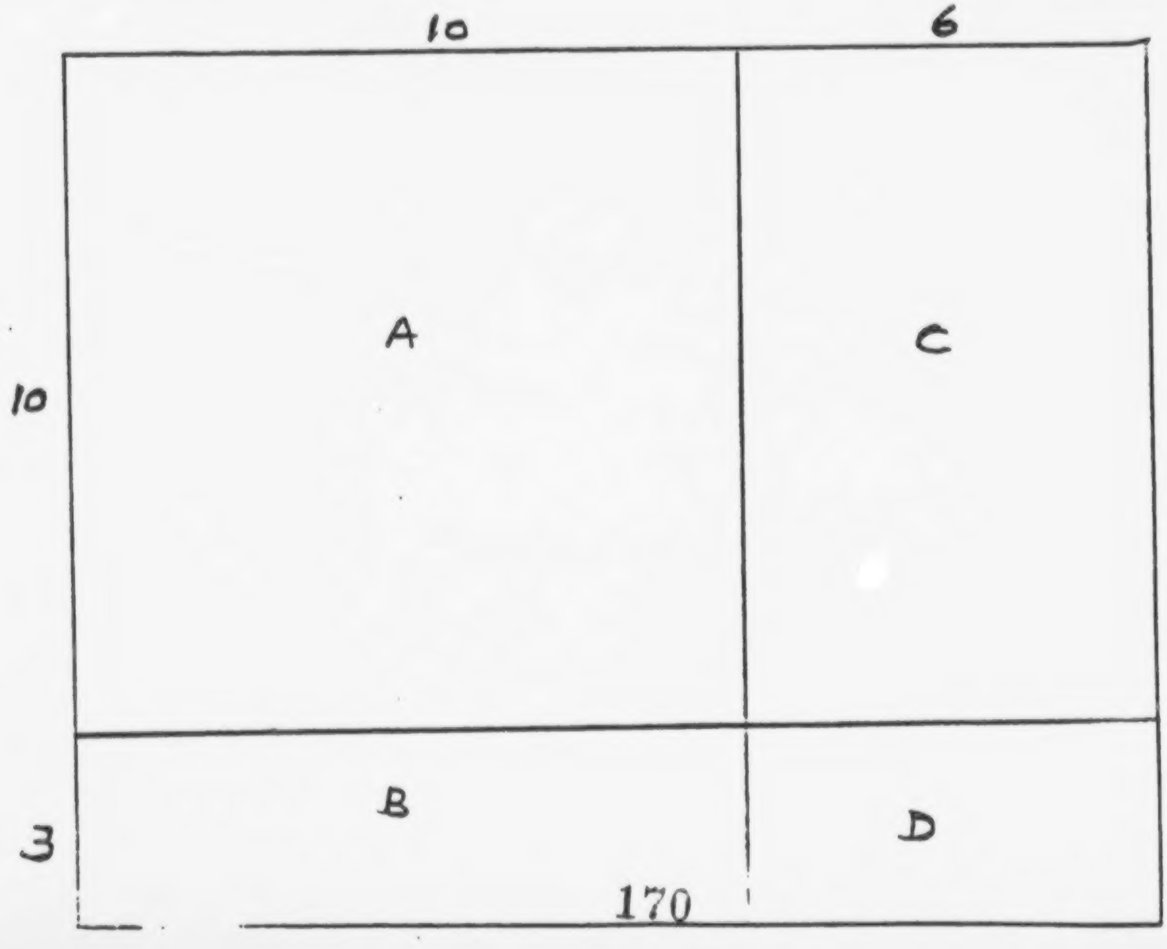

22
36


12
32


A
C
B
D


A
C
B
D


10
7
A
C
10
B
D
2


10
6
A
C
10
B
D
3

Mathematician:____

"For the rectangles given with partial products labelled, I recorded the partial products and found the total product."

LENGTH & WIDTH OF RECTANGLES	PARTIAL PRODUCTS				TOTAL PRODUCT
	A	B	C	D	

Mathematician:______________________________________

"I used base ten blocks or graph paper to make rectangles.
I recorded ALL FOUR partial products and found the total product.

	THOUSANDS	HUNDREDS	TENS	ONES
			2	7
		×	4	1
1.				
2.				
3.				
4.				
+				
TOTAL				

	THOUSANDS	HUNDREDS	TENS	ONES
1.				
2.				
3.				
4.				
+				
TOTAL				

	THOUSANDS	HUNDREDS	TENS	ONES
		3	3	2
		×	1	8
1.				
2.				
3.				
4.				
+				
TOTAL				

	THOUSANDS	HUNDREDS	TENS	ONES
1.				
2.				
3.				
4.				
+				
TOTAL				

Mathematician:________________________________

"I used base ten blocks or graph paper to make rectangles.
I recorded ALL FOUR partial products and found the total product.

THOUSANDS	HUNDREDS	TENS	ONES
		3	6
	x	3	6
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
		8	1
	x	2	6
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
1.			
2.			
3.			
4.			
+			
TOTAL			

Mathematician:____

"I used base ten blocks or graph paper to make rectangles.
I recorded ALL FOUR partial products and found the total product.

THOUSANDS	HUNDREDS	TENS	ONES
		3	6
	x	2	2
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
		4	1
	x	3	2
1.			
2.			
3.			
4.			
+			
TOTAL			

THOUSANDS	HUNDREDS	TENS	ONES
1.			
2.			
3.			
4.			
+			
TOTAL			

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION

RECTANGLE

	Thousands	Hundreds	Tens	Ones
			2	7
			× 4	2
1.				
2.				
3.				
4.				
5.				
6.				
Total				

			4	3
			× 1	9
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION **RECTANGLE**

	Thousands	Hundreds	Tens	Ones
			2	7
			× 4	2
1.				
2.				
3.				
4.				
5.				
6.				
Total				

	Thousands	Hundreds	Tens	Ones
			4	3
			× 1	9
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION **RECTANGLE**

	Thousands	Hundreds	Tens	Ones
			3	6
		x 1	5	2
1.				
2.				
3.				
4.				
5.				
6.				
Total				

	Thousands	Hundreds	Tens	Ones
			4	1
		x 1	0	7
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Mathematician:____

"I divided a rectangle up to show the partial products, wrote all of the partial products for the multiplications and added them to get the total product."

MULTIPLICATION **RECTANGLE**

	Thousands	Hundreds	Tens	Ones
		1	2	6
			x 3	2
1.				
2.				
3.				
4.				
5.				
6.				
Total				

		1	0	5
			x 4	3
1.				
2.				
3.				
4.				
5.				
6.				
Total				

Mathematician: ____________________

"I used the given number of tiles to make rows of five different lengths.
I wrote the computation form and the number sentences for these."

TILES	ROW LENGTHS	DIVISION FORM	NUMBER SENTENCE
Example! 14	2 3 4 5 6	$2\overline{)14}$ $3\overline{)14}$ $4\overline{)14}$ $5\overline{)14}$ $6\overline{)14}$	$14 \div 2 = 7$ $14 \div 3 = 4R2$ $14 \div 4 = 3R2$ $14 \div 5 = 2R4$ $14 \div 6 = 2R2$
15			
16			
17			
18			

Mathematician:____

"I used the given number of tiles to make rows of five different lengths.
I wrote the computation form and the number sentences for these."

TILES	ROW LENGTHS	DIVISION FORM	NUMBER SENTENCE
19			
20			
21			
22			
23			

Mathematician:____

"I used the given number of tiles to make rows of five different lengths. I wrote the computation form and the number sentences for these."

TILES	ROW LENGTHS	DIVISION FORM	NUMBER SENTENCE
24			
25			
26			
27			
28			

Mathematician:________________________________

"I used the graph paper to find the QUOTIENT (missing side) for these divisions."

DIVISION	COMPUTATION				NUMBER SENTENCE
	Divisor	HUNDREDS	TENS	ONES	
Example: $5\overline{)27}$	5		 2 2	5 7 5 2	$27 \div 5 = 5$ R 2
$9\overline{)28}$					
$28 \div 6$					
$30 \div 7$					

Mathematician:____

"I used the graph paper to find the QUOTIENT (missing side) for these divisions."

DIVISION	COMPUTATION			NUMBER SENTENCE
	Diviser HUNDREDS	TENS	ONES	
29 ÷ 4				
31 ÷ 8				
31 ÷ 6				
29 ÷ 5				

Mathematician:______________________________________

"I used the graph paper to find the QUOTIENT (missing side) for these divisions."

DIVISION	COMPUTATION			NUMBER SENTENCE
	Diviser HUNDREDS	TENS	ONES	
26 ÷ 3				
40 ÷ 6				
51 ÷ 7				
50 ÷ 9				

Mathematician:____

"I used the graph paper to find the QUOTIENT (missing side) for these divisions."

DIVISION	COMPUTATION				NUMBER SENTENCE
	Divisor	Hundreds	Tens	Ones	
Example: 26 ÷ 5	5)		2 2	5 6 5 1	26 ÷ 5 = 5 R 1
41 ÷ 6					
34 ÷ 5					
34 ÷ 4					

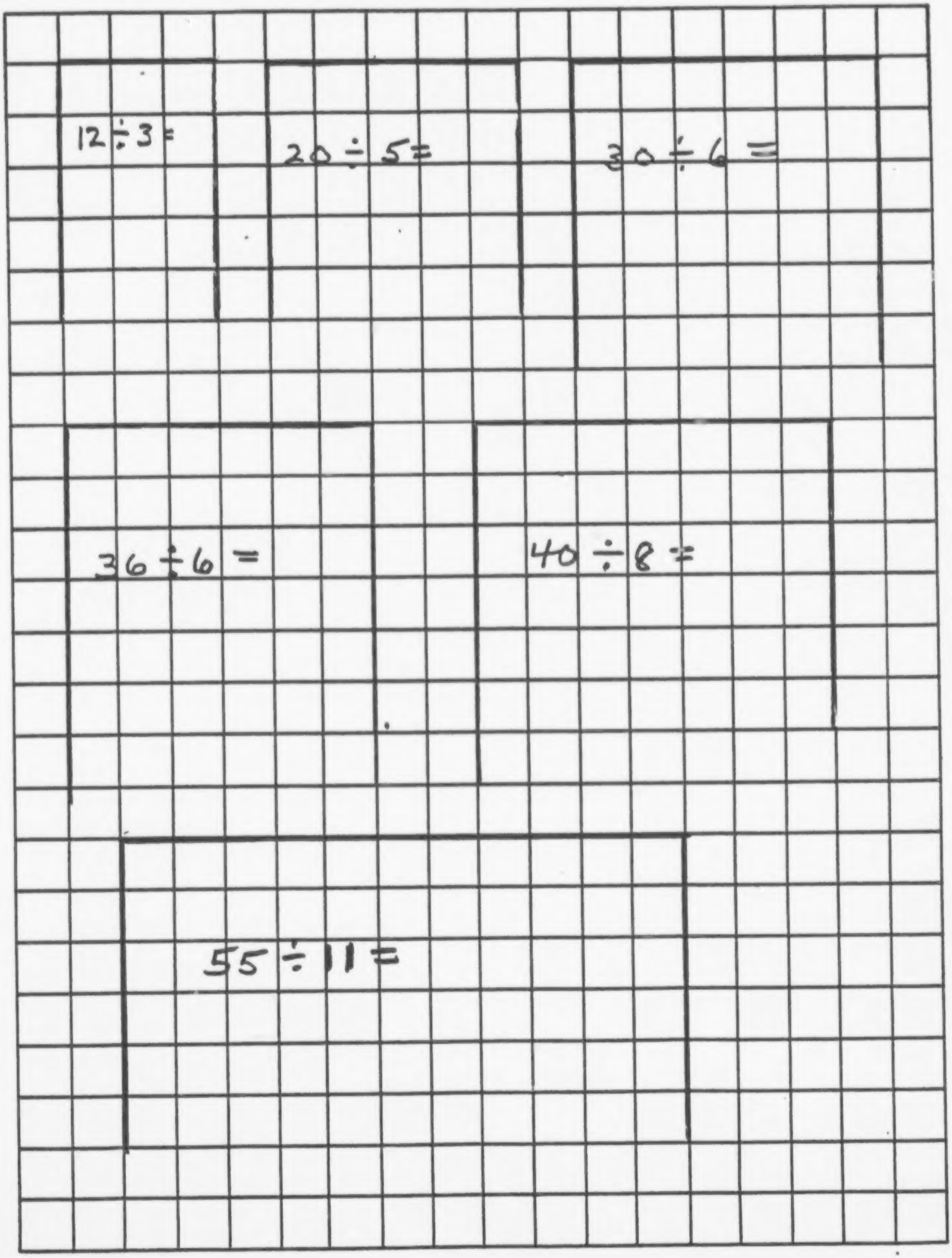
Mathematician:______________________________

"I used the graph paper to find the QUOTIENT (missing side) for these divisions."

DIVISION	COMPUTATION				NUMBER SENTENCE
	Divisor	Hundreds	Tens	Ones	
37 ÷ 7					
40 ÷ 7					
36 ÷ 3					
48 ÷ 7					

Mathematician:____

"I completed these divisions by finding the second sides of the rectangles."



12 ÷ 3 =
20 ÷ 5 =
30 ÷ 6 =
36 ÷ 6 =
40 ÷ 8 =
55 ÷ 11 =

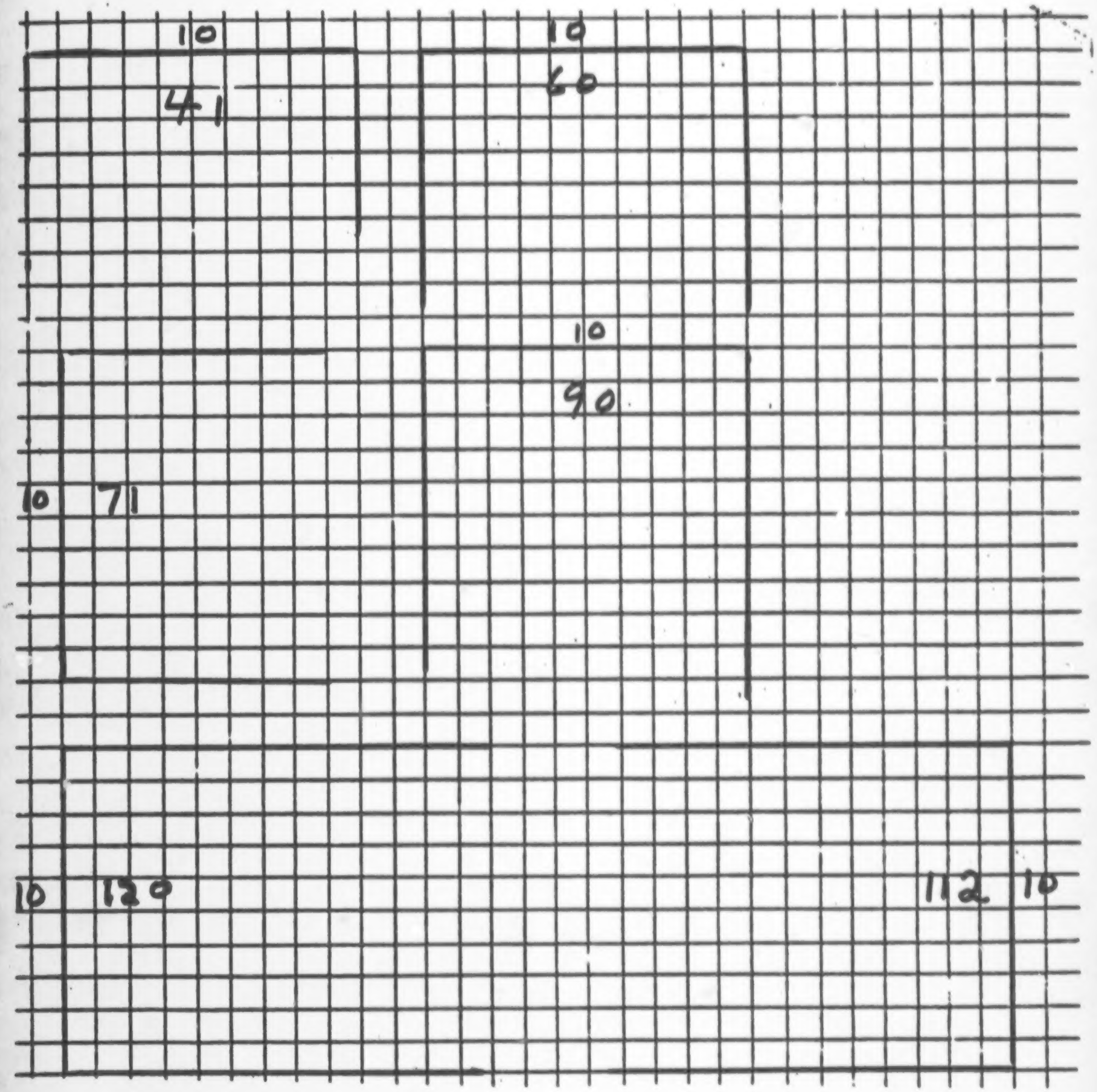
Mathematician:____

"For the graph paper divisions by ten, I drew the line making the largest possible rectangle, completed the computation form and wrote the number sentence."

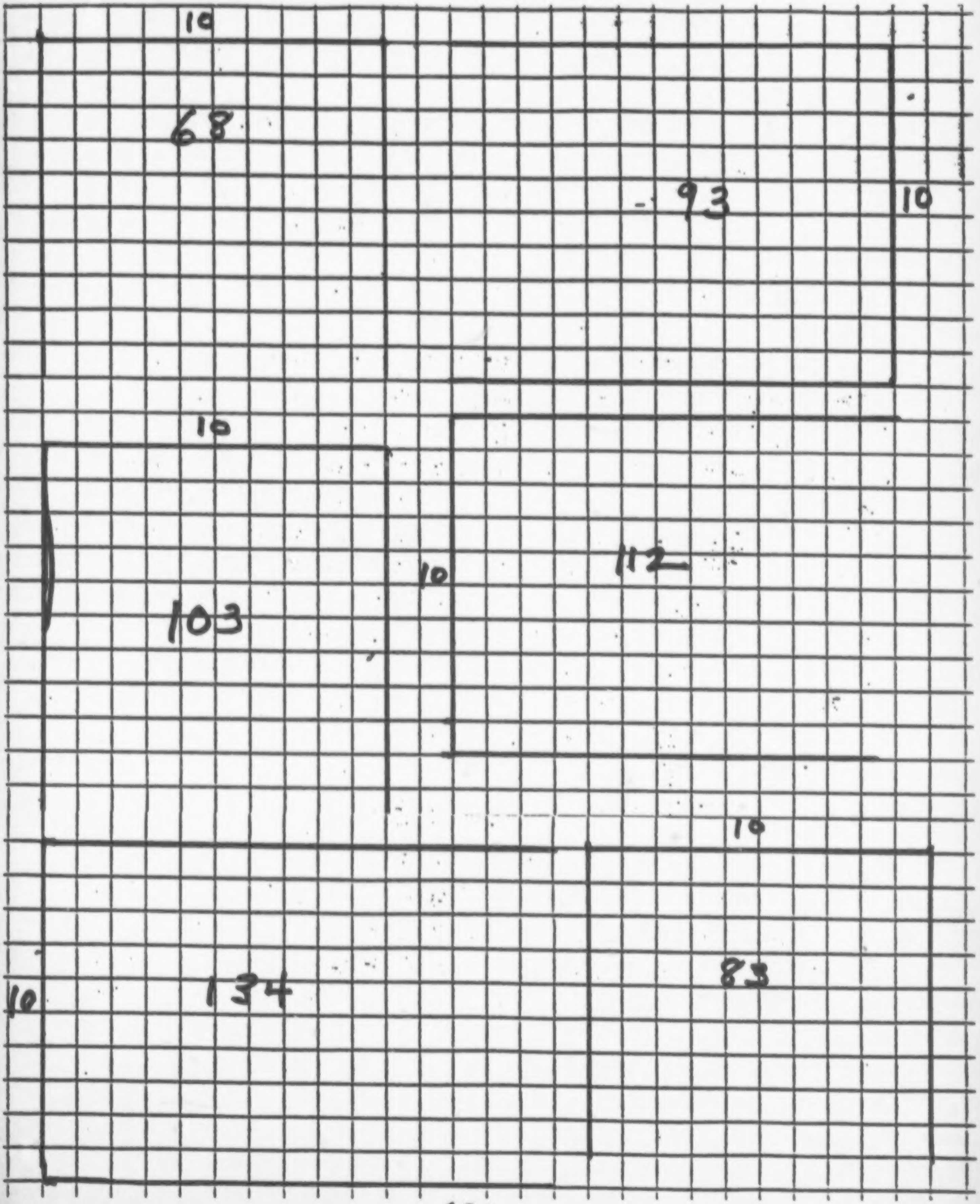
Units Given	Side Given	Side Found	Computation form		Number Sentence
			Tens	Ones	
41	10	4	10) 4 - 4	4 1 0 1	41÷10=4R1

Mathematician:____

"The line I drew shows the largest rectangle that can be made from the units given."


10
41
10
60
10
90
10
71
10
120
112
10

Mathematician: ______________________________


10
68
93
10
10
10
103
112
10
134
83

Mathematician:____

"I use base ten blocks to find the missing sides ot he largest rectangle I could make from a given number of base ten pieces."

BASE TEN BLOCKS		SIDE GIVEN	SECOND SIDE OF LARGEST RECTANGLE	COMPUTATION FORM	
TENS	ONES			TENS	ONES
Example: 3	7	8	4	 8) 3 3	4 7 2 5
2	8	6			
4	7	7			
5	3	7			
2	9	10			

Mathematician:____

"I use base ten blocks to find the missing sides ot he largest rectangle I could make from a given number of base ten pieces."

BASE TEN BLOCKS		SIDE GIVEN	SECOND SIDE OF LARGEST RECTANGLE	COMPUTATION FORM	
TENS	ONES			TENS	ONES
4	4	10			
5	4	10			
5	4	9			
5	5	10			
6	1	10			

Mathematician:____

"I made the largest rectangles I could on the graph paper using the square units given, the side given, and completed the computation form."

Squares given	Side given	Side found	Computation form	
			TENS	ONES
36	11			
42	9			
38	7			
40	12			

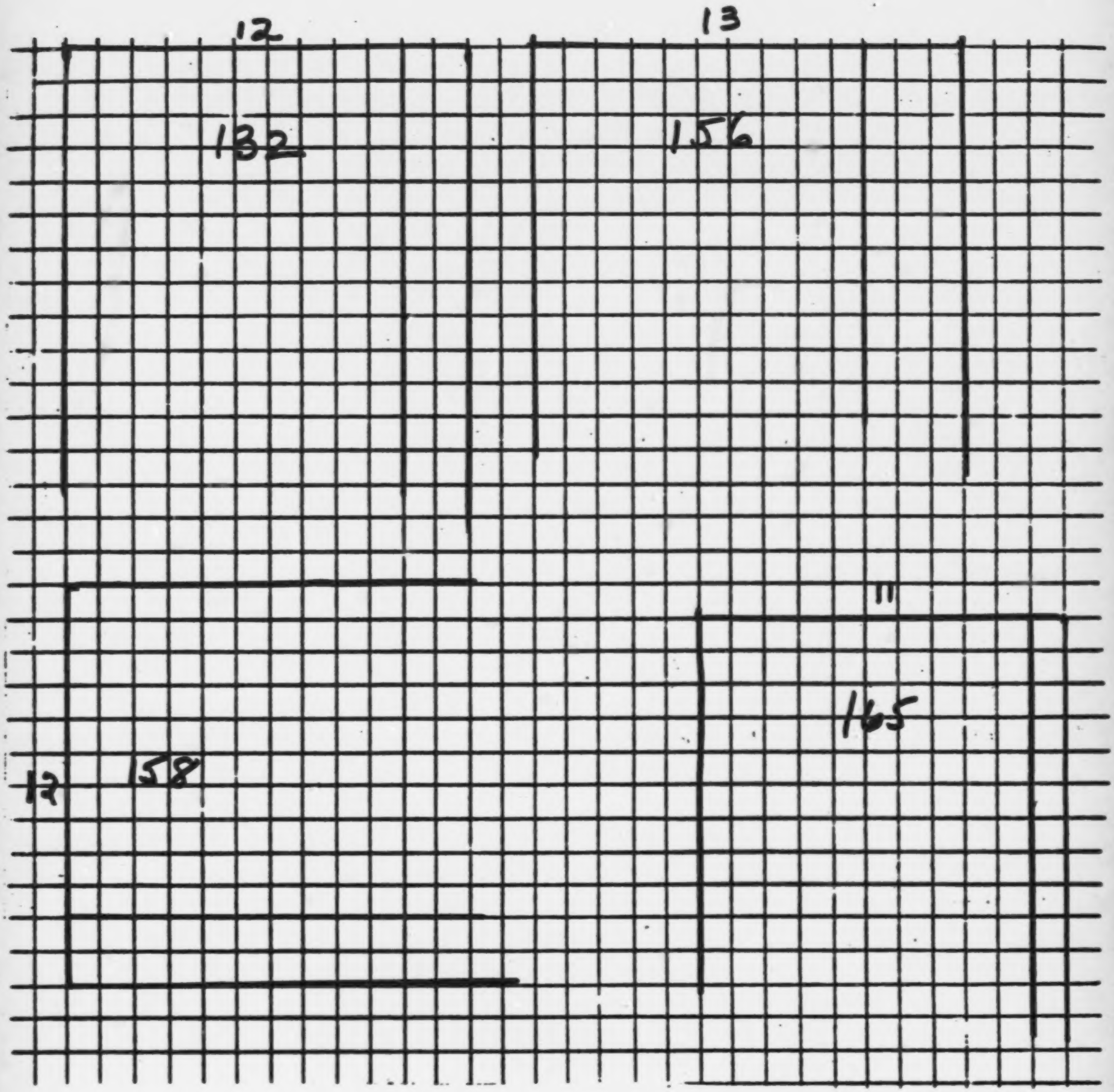
Mathematician:____

"I made the largest rectangles I could on the graph paper using the square units given, the side given, and completed the computation form."

Squares given	Side given	Side found	Computation form	
			TENS	ONES
48	8			
51	4			
52	8			
46	7			

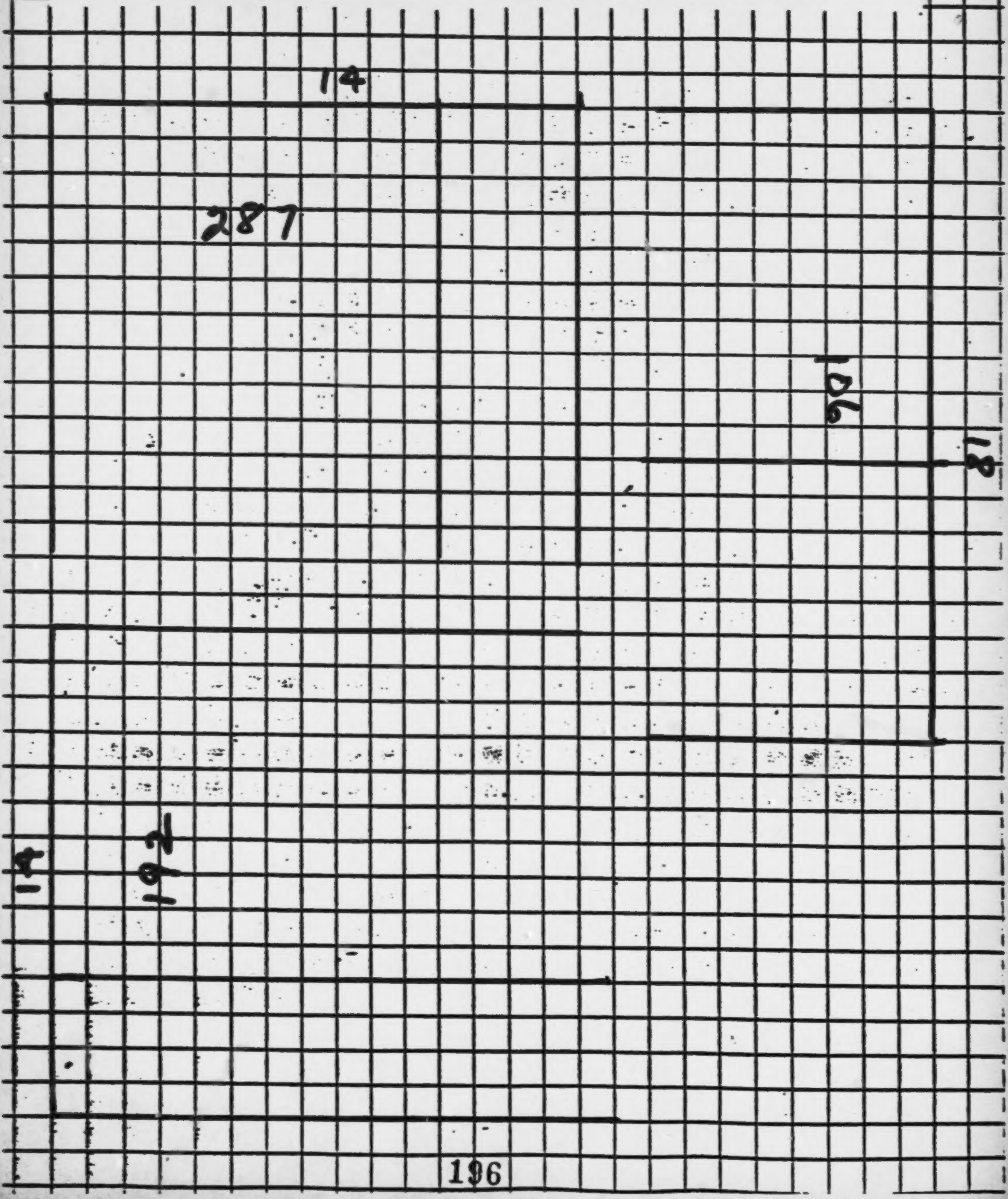
Mathematician:____

"I draw a line on the graph paper to make the largest rectangle. I circled the remainder. I wrote the missing side on the paper after I found it."


12
132
13
156
11
165
12
158

Mathematician:____

"I draw a line on the graph paper to make the largest rectangle. I circled the remainder. I wrote the missing side on the paper after I found it."


14
287
106
81
14
192

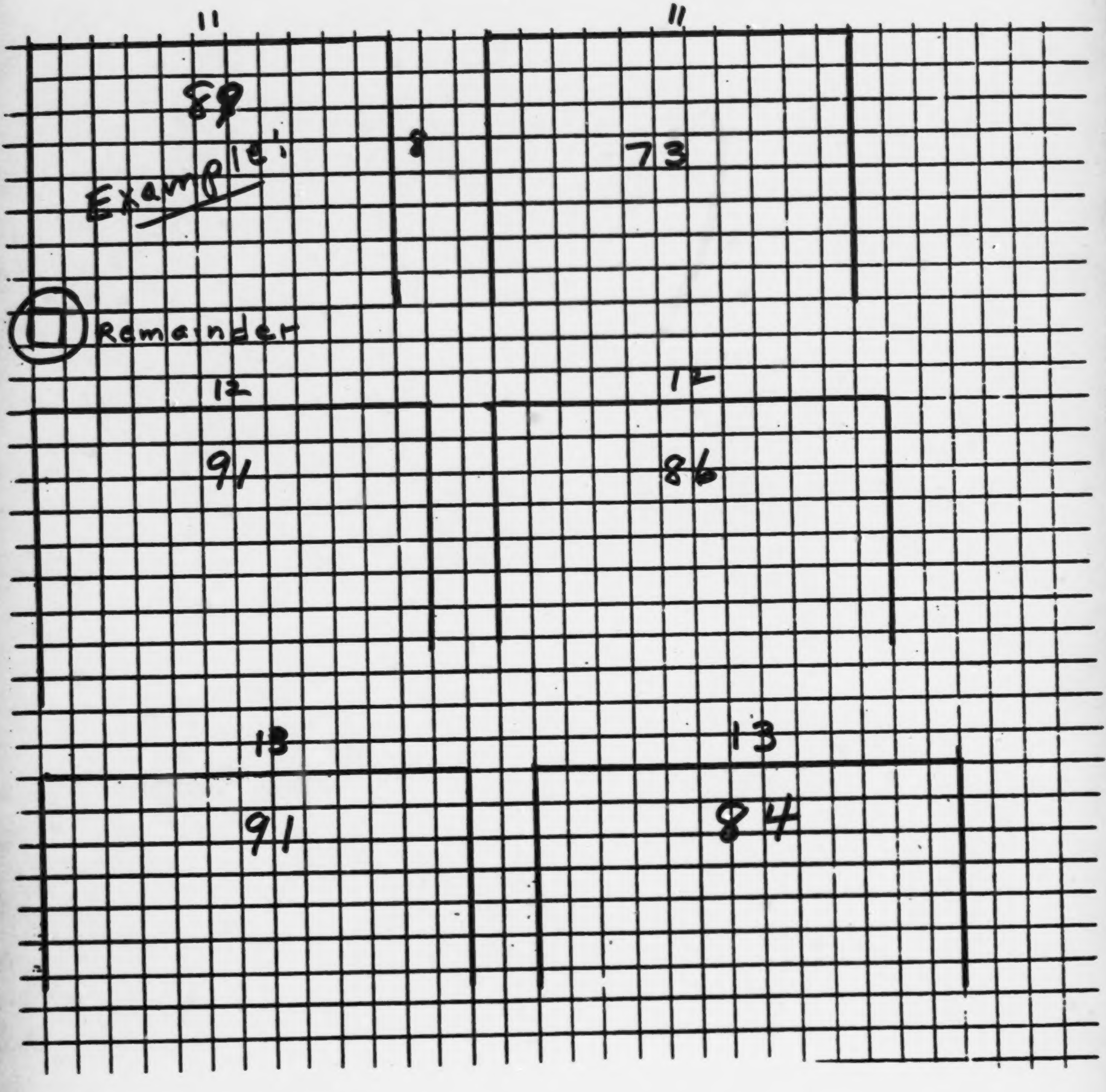
Mathematician:______________________________

"I used the swquare units given and the side given on the graph paper and found the longest second side to make the largest rectange. I recorded the results after drawing the line on the graph paper to make the rectangle."

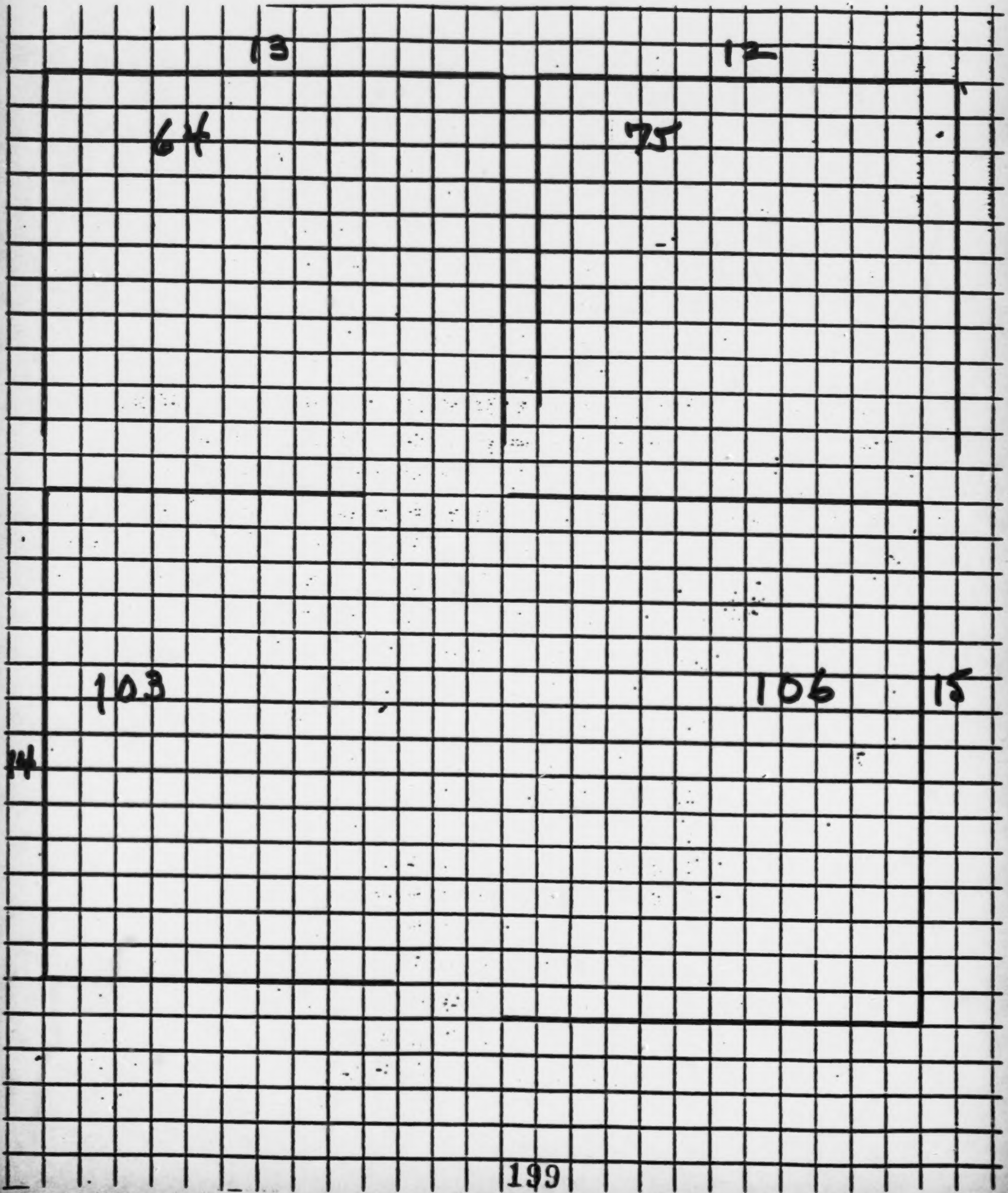
Square Given	Side Given	Side Found	Remainder	Computation Form	
				Tens	Ones

Mathematician:____

"I drew a line to make the biggest rectangle. I circled any remainder."

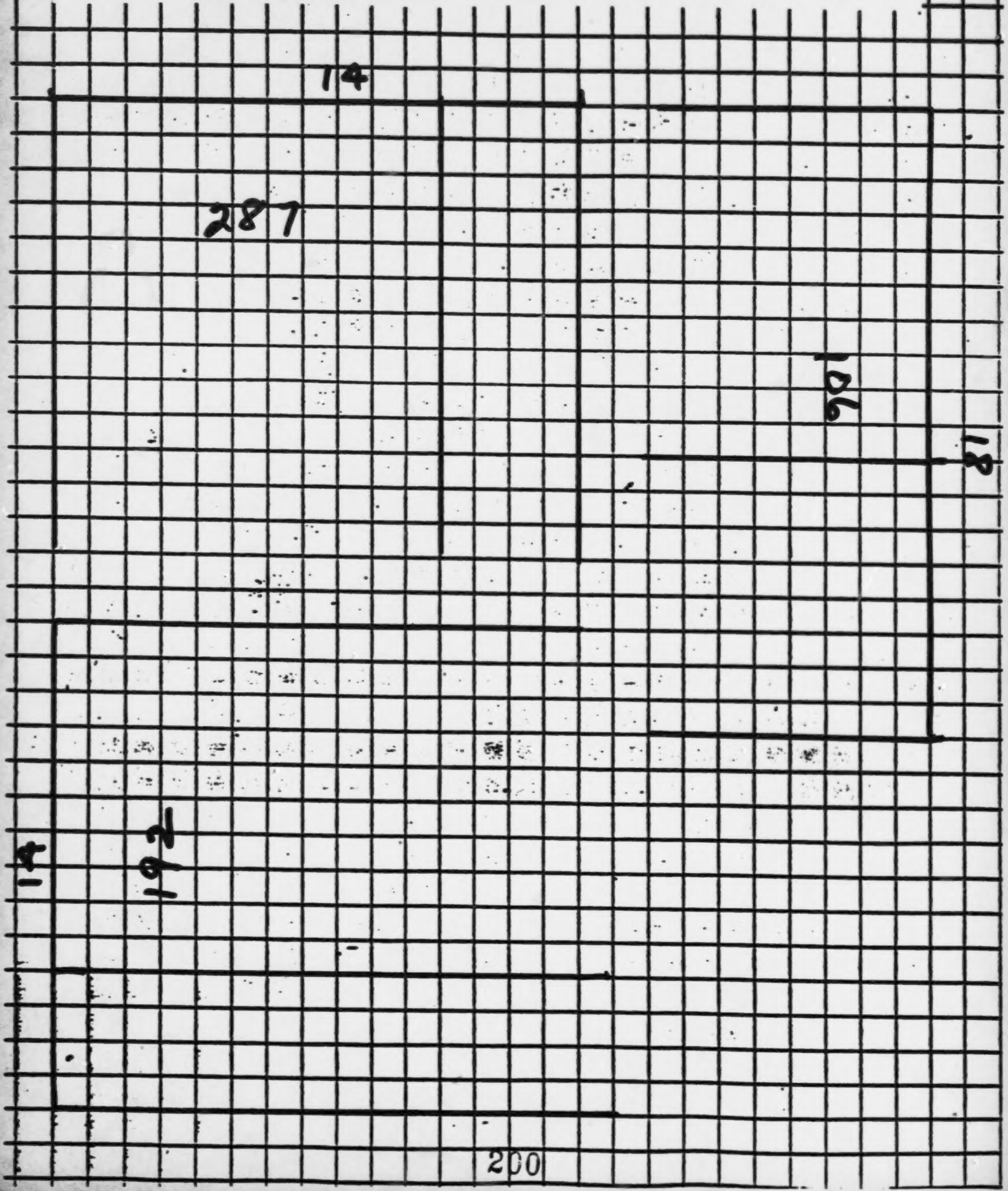

11
89
Example!
8
11
73
Remainder
12
91
12
86
13
91
13
84

Mathematician:____


13
12
64
75
103
106
15
14

Mathematician:____

"I draw a line on the graph paper to make the largest rectangle. I circled the remainder. I wrote the missing side on the paper after I found it."

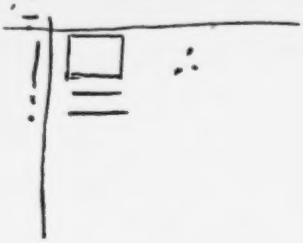

14
287
106
18
14
192

Mathematician:____

"I did these divisions by making rectangles on the workmat. I showed the results by completing the computation form."

PICTURE OF WORKMAT **COMPUTATION FORM**

Example:



	HUNDREDS	TENS	ONES
		1	0
12	1	2	3
	1	2	0
			3

	HUNDREDS	TENS	ONES
13	1	4	6

	HUNDREDS	TENS	ONES
15	1	7	5

	HUNDREDS	TENS	ONES
12	1	0	9

Mathematician:____

"I did these divisions by making rectangles on the workmat. I showed the results by completing the computation form."

PICTURE OF WORKMAT **COMPUTATION FORM**

	HUNDREDS	TENS	ONES
12	1	3	6

	HUNDREDS	TENS	ONES
21	2	0	0

	HUNDREDS	TENS	ONES
20	2	0	5

	HUNDREDS	TENS	ONES
17	1	8	6

Mathematician:____

"I use base ten pieces to make rectangles on the division mat. I completed the computatic form."

Side Given	Base Ten Pieces Available	Side Found	Remainder	Computation Form			
					HUNDREDS	TENS	ONES
Example: 16	1 Hundreds 2 Tens 3 Ones	7	11	16	1 1	7 2 1 1	3 2 1
21	1 Hundreds 9 Tens 6 Ones						
27	2 Hundreds 0 Tens 8 Ones						
22	3 Hundreds 1 Tens 1 Ones						

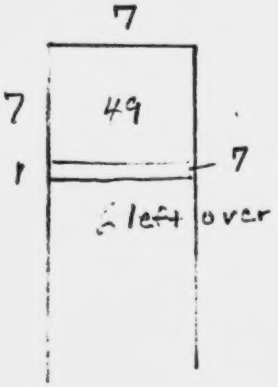
Mathematician:____

"I use base ten pieces to make rectangles on the division mat. I completed the computatio form."

Side Given	Base Ten Pieces Available	Side Found	Remainder	Computation Form		
				HUNDREDS	TENS	ONES
20	1 Hundreds 4 Tens 2 Ones					
31	2 Hundreds 6 Tens 0 Ones					
22	2 Hundreds 2 Tens 2 Ones					
28	3 Hundreds 0 Tens 4 Ones					

Mathematician:____

"I made rectangles to do the divisions, drew these and labelled the sides. I also completed the computation form."

Division	**Rectangle**	**Computation Form**
Example: 62 ÷ 7		**Hundreds Tens Ones** 8 7) 6 2 5 6 6 (remainder)
136 ÷ 10		**Hundreds Tens Ones**)
104 ÷ 21		**Hundreds Tens Ones**)

Mathematician:____

"I made rectangles to do the divisions, drew these and labelled the sides.
I also completed the computation form."

Division	Rectangle	Computation Form
98 ÷ 12		Hundreds | Tens | Ones)
122 ÷ 9		Hundreds | Tens | Ones)
131 ÷ 11		Hundreds | Tens | Ones)

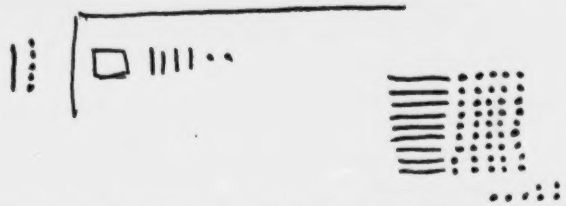
Mathematician:____

"I made rectangles to do the divisions, drew these and labelled the sides.
I also completed the computation form."

Division	Rectangle	Computation Form
106 ÷ 21		Hundreds | Tens | Ones
233 ÷ 28		Hundreds | Tens | Ones
155 ÷ 13		Hundreds | Tens | Ones

Mathematician: ______________________________

"I used base ten blocks to do these. I divided the largest places first. I arranged the base ten blocks subtracted into a rectangle."

DIVISION	BASE TEN BLOCK PICTURES	COMPUTATION FORM
EXAMPLE: 142 ÷ 15		$\begin{array}{r} 9 \\ 15\overline{)\,142} \\ 135 \\ \hline 7 \end{array}$
106 ÷ 9		
142 ÷ 11		
165 ÷ 14		
204 ÷ 16		

Mathematician:______________________________________

"I used base ten blocks to do these. I divided the largest places first.
I arranged the base ten blocks subtracted into a rectangle."

DIVISION	BASE TEN BLOCK PICTURES	COMPUTATION FORM
184 ÷ 16		
195 ÷ 25		
188 ÷ 17		
211 ÷ 16		
192 ÷ 17		

Mathematician:____

"I used base ten blocks to do these. I divided the largest places first.
I arranged the base ten blocks subtracted into a rectangle."

DIVISION	BASE TEN BLOCK PICTURES	COMPUTATION FORM
200 ÷ 15		
204 ÷ 21		
221 ÷ 11		
144 ÷ 12		
111 ÷ 10		

Mathematician:____

"I used base ten blocks to do these multiplications. I found the partial products one at a time."

MULTIPLICATION	PARTIAL PRODUCT SUM	PRODUCT
EXAMPLE: 21 × 18	200 + 160 + 10 + 8	378
14 × 26		
22 × 33		
16 × 34		
21 × 19		
20 × 32		
16 × 16		
18 × 31		

Mathematician:______________________________

"I used base ten blocks to do these multiplications. I found the partial products one at a time."

MULTIPLICATION	PARTIAL PRODUCT SUM	PRODUCT
19 x 32		
16 x 24		
13 x 25		
22 x 47		
31 x 31		
21 x 17		
15 x 15		
21 x 21		

Mathematician:____

"I used base ten blocks to do these multiplications. I found the partial products one at a time."

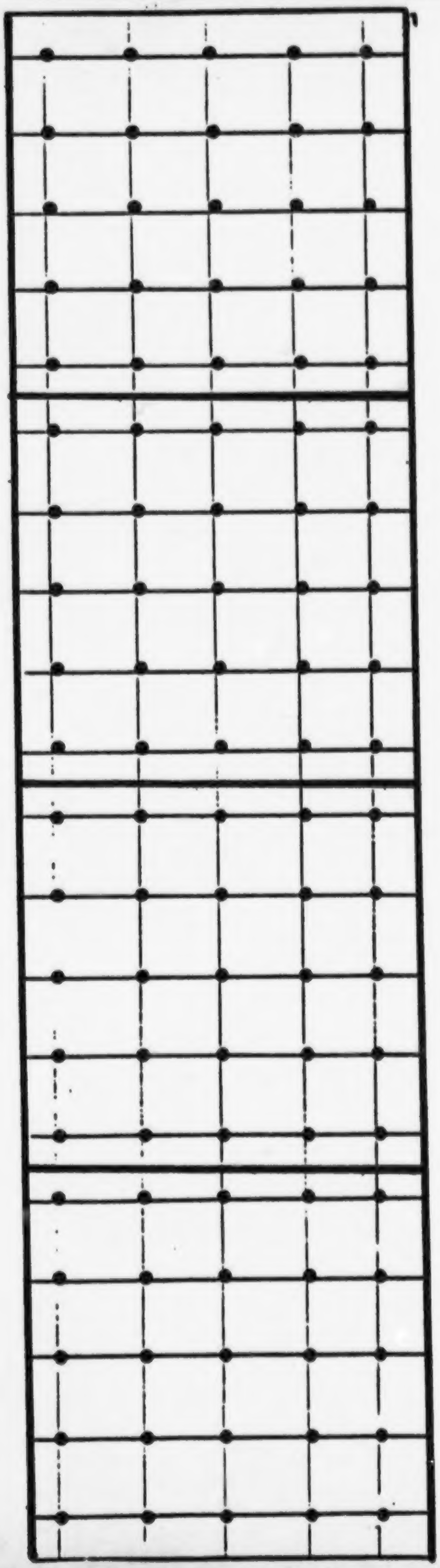
MULTIPLICATION	PARTIAL PRODUCT SUM	PRODUCT
24 x 18		
31 x 13		
23 x 37		
22 x 19		
11 x 29		
14 x 15		
20 x 25		
17 x 17		

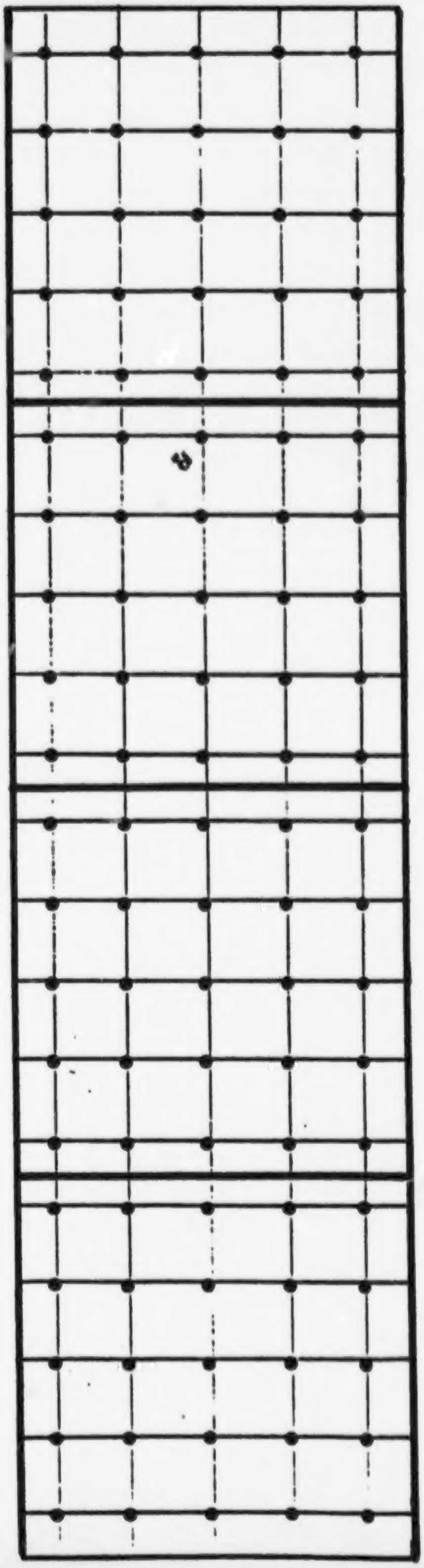
Mathematician:____

"I used a geoboard with __________ to make mirror images of shapes.
We took turns making the first shape. Here are our shapes."

I made the first shape

____________made the first shape



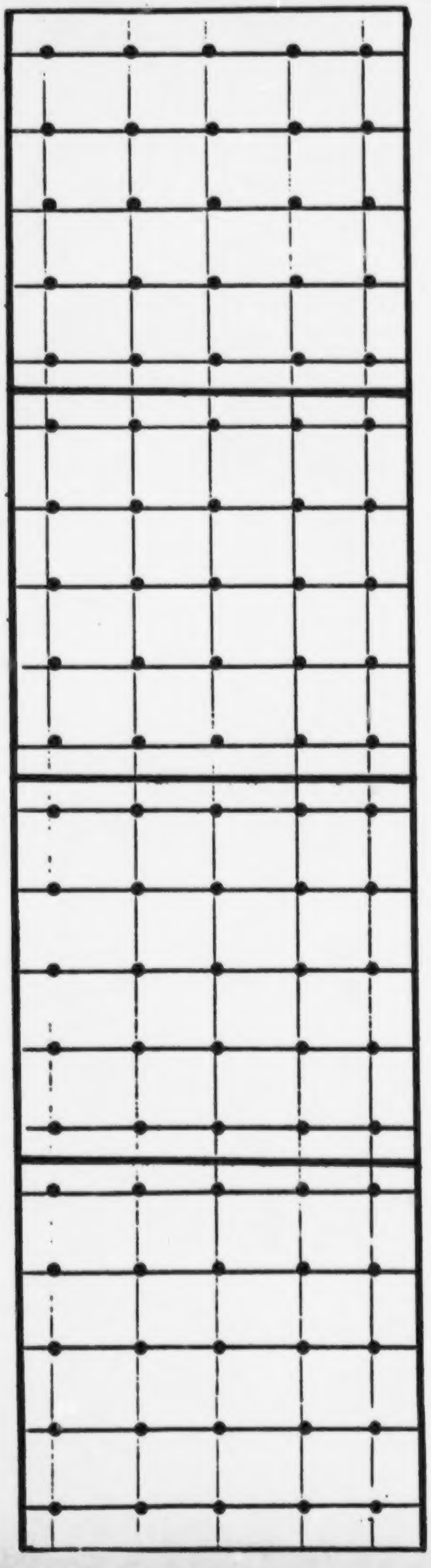


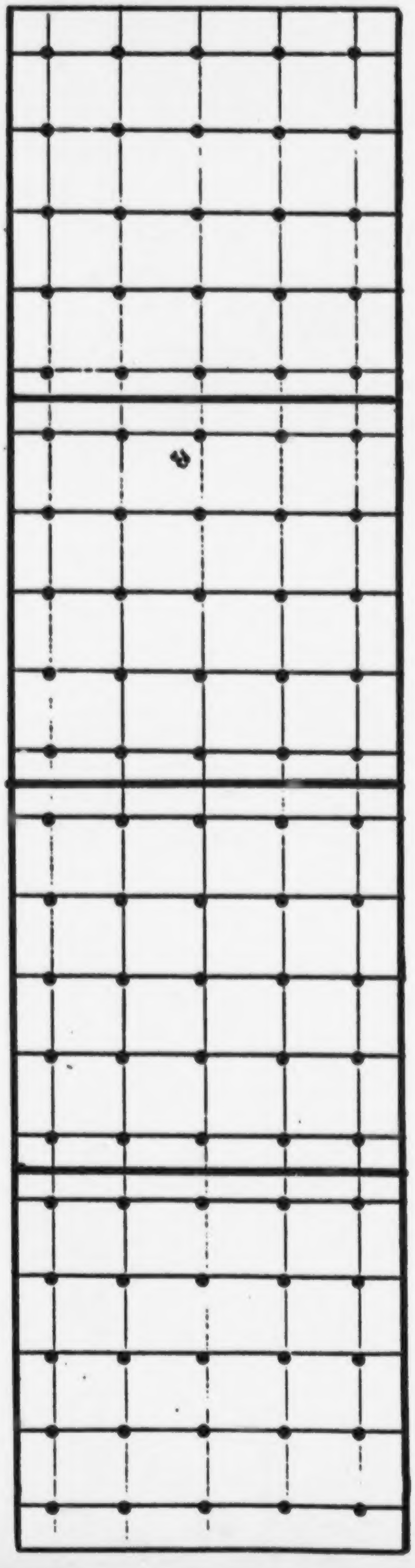
Mathematician:____________________________________

"I used a geoboard with __________ to make mirror images of shapes.
We took turns making the first shape. Here are our shapes."

I made the first shape

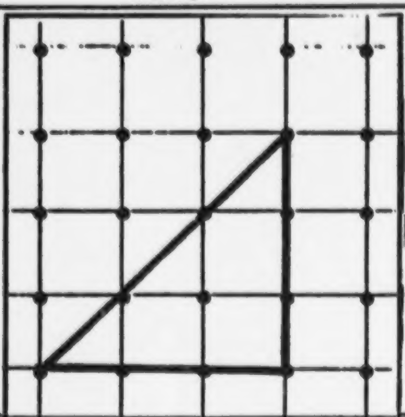
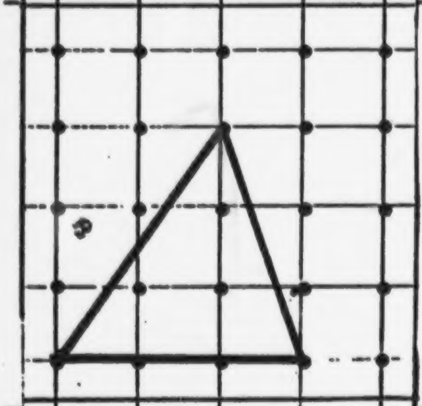
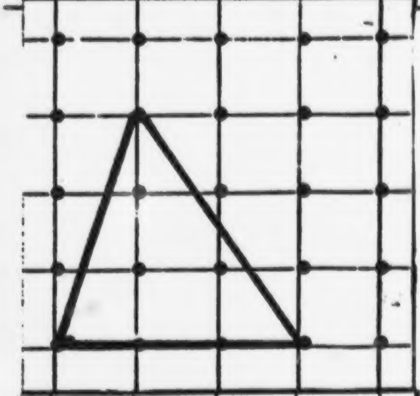
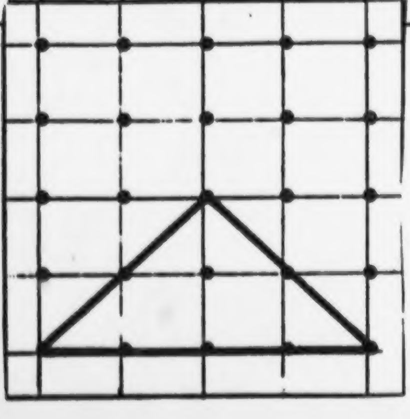
____________made the first shape





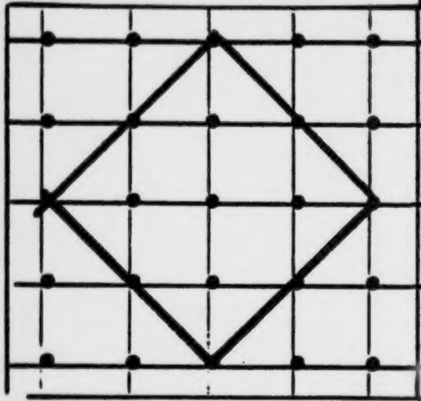
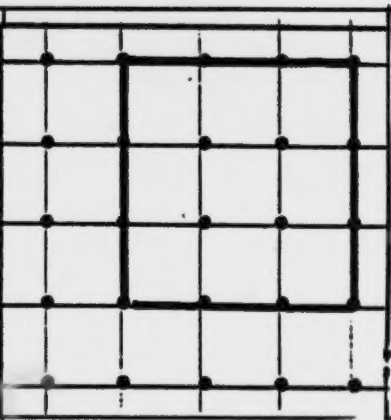
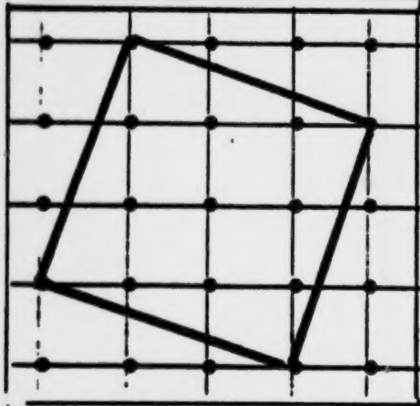
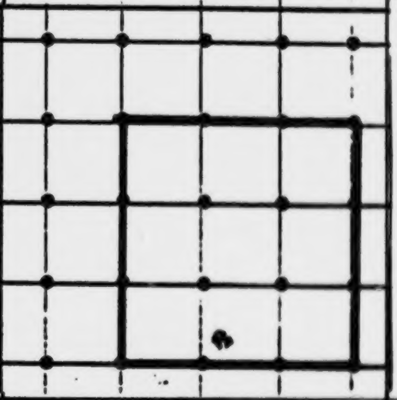
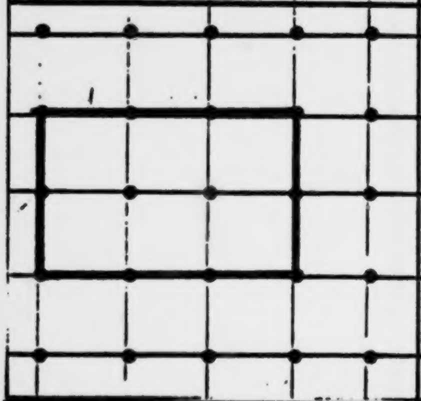
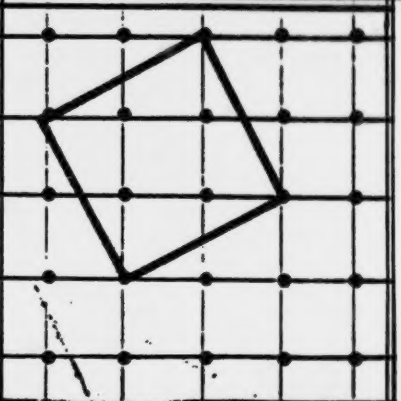
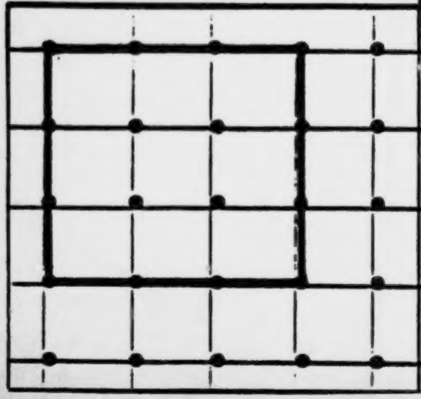
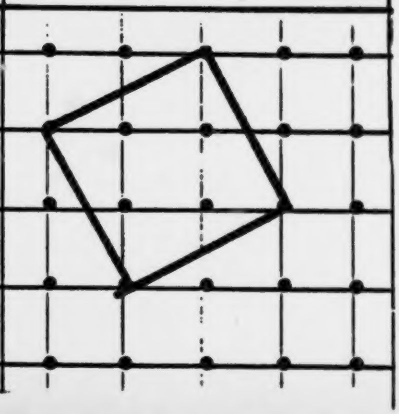
Mathematician:____

"I found the area and perimeter for these shapes."

Shape	Area	Perimeter
		
		
		
		

Mathematician:____

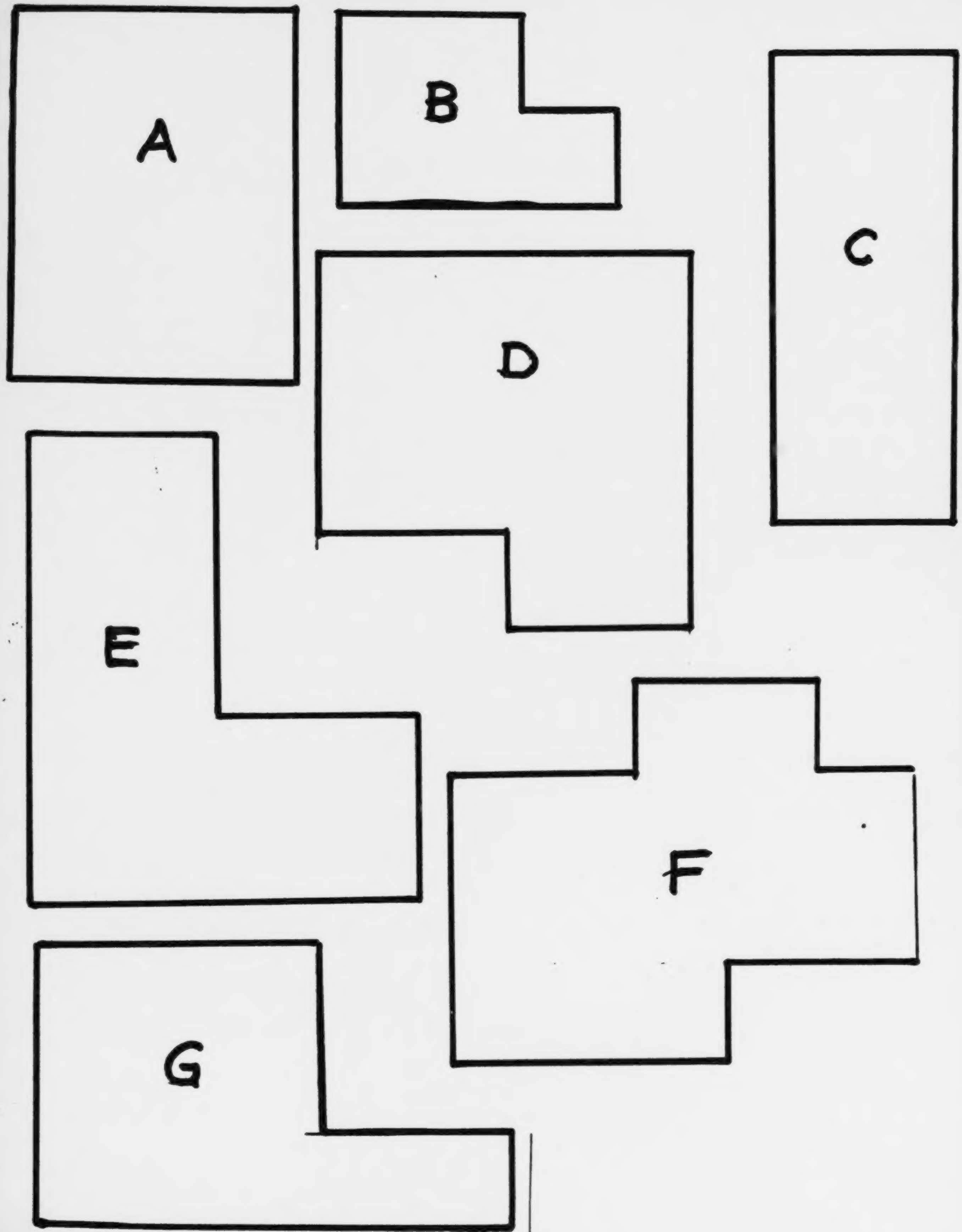
"I compared these shapes and put the letter of the shape having the GREATEST area or perimeter in the right column."

A	B	Area	Perimeter
			
			
			
			

Mathematician:____

"I found the perimeter of each lettered shape and recorded it next to the letter of the shape."

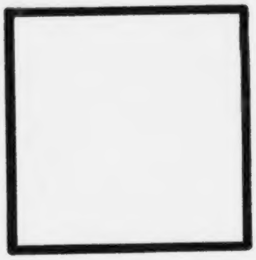
Shape	Perimeter
A	
B	
C	
D	
E	
F	
G	
H	

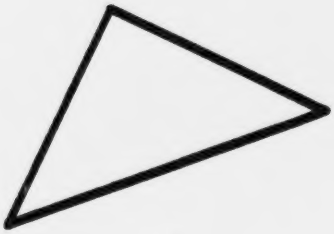

A
B
C
D
E
F
G

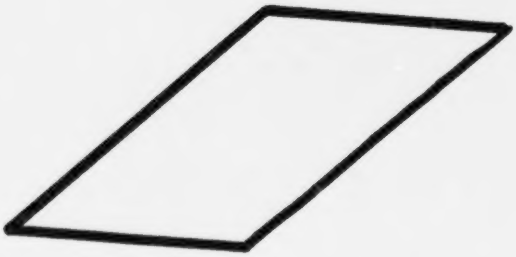
H

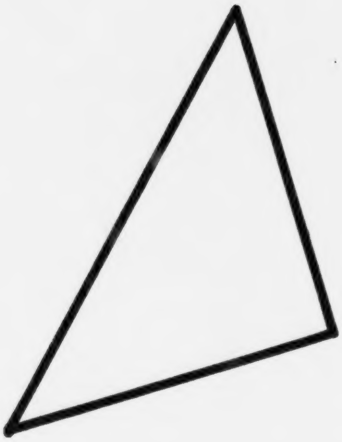
Mathematician:____

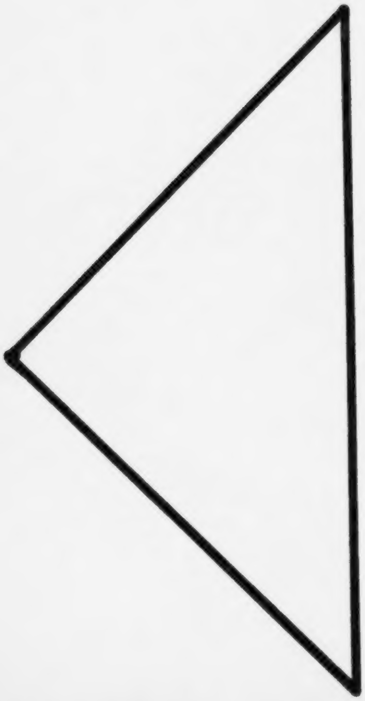
"I found the PERIMETER of each tangram piece. I numbered the pieces below from 1 to 5 to put them in order. 1 has the shortest perimeter and 5 has the longest perimeter."





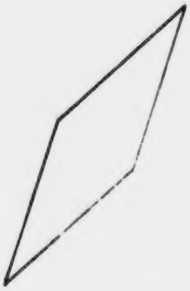
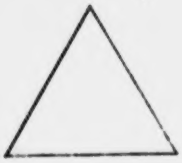
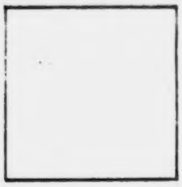
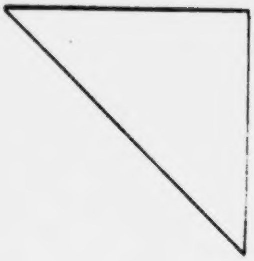
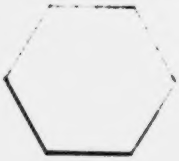
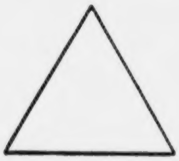






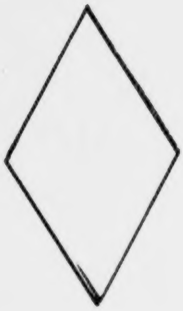
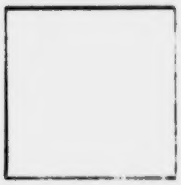
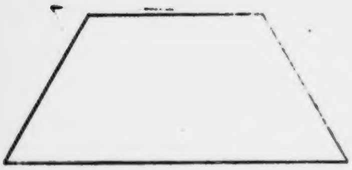
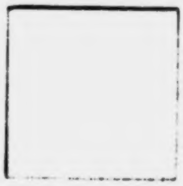
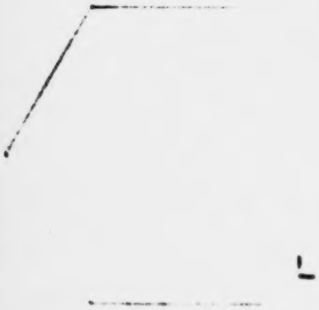
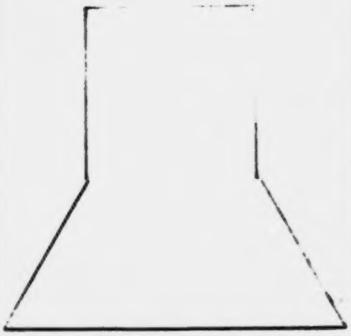
Mathematician:____

"I compared the areas and perimeters of these shapes and put the letter of the LARGER in each case in the right column."

SHAPE A	SHAPE B	GREATER AREA	GREATER PERIMETER
			
			
			

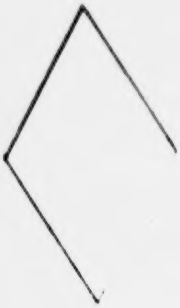
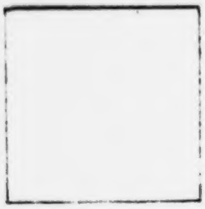
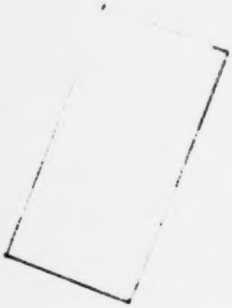
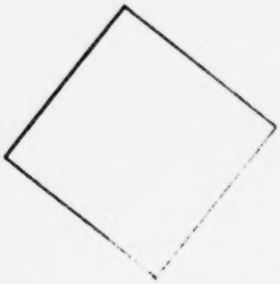
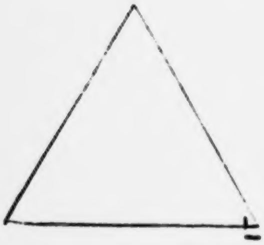
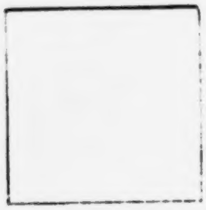
Mathematician:____

"I compared the areas and perimeters of these shapes and put the letter of the LARGER in each case in the right column."

SHAPE A	SHAPE B	GREATER AREA	GREATER PERIMETER
			
			
			

Mathematician:____

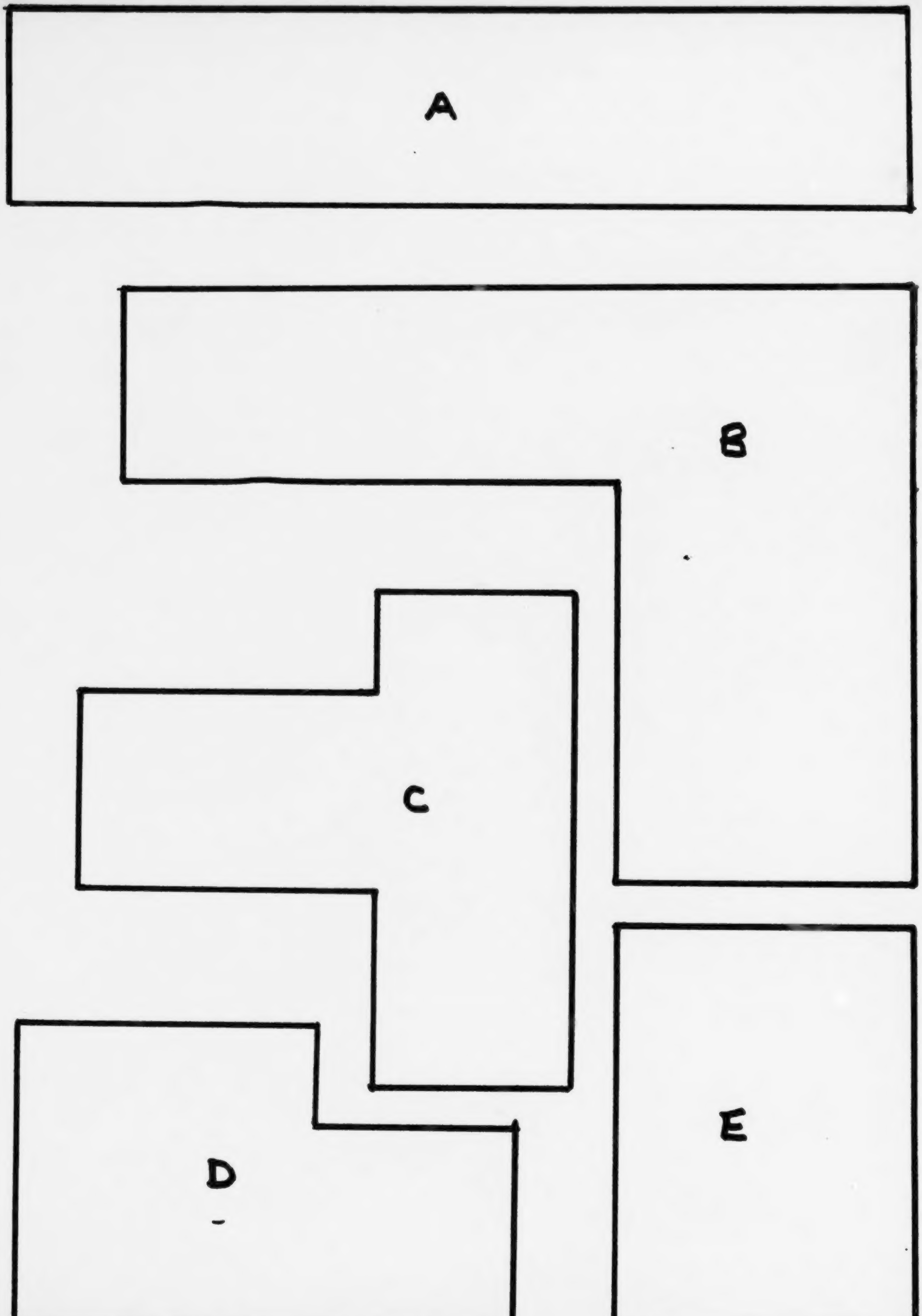
"I compared the areas and perimeters of these shapes and put the letter of the LARGER in each case in the right column."

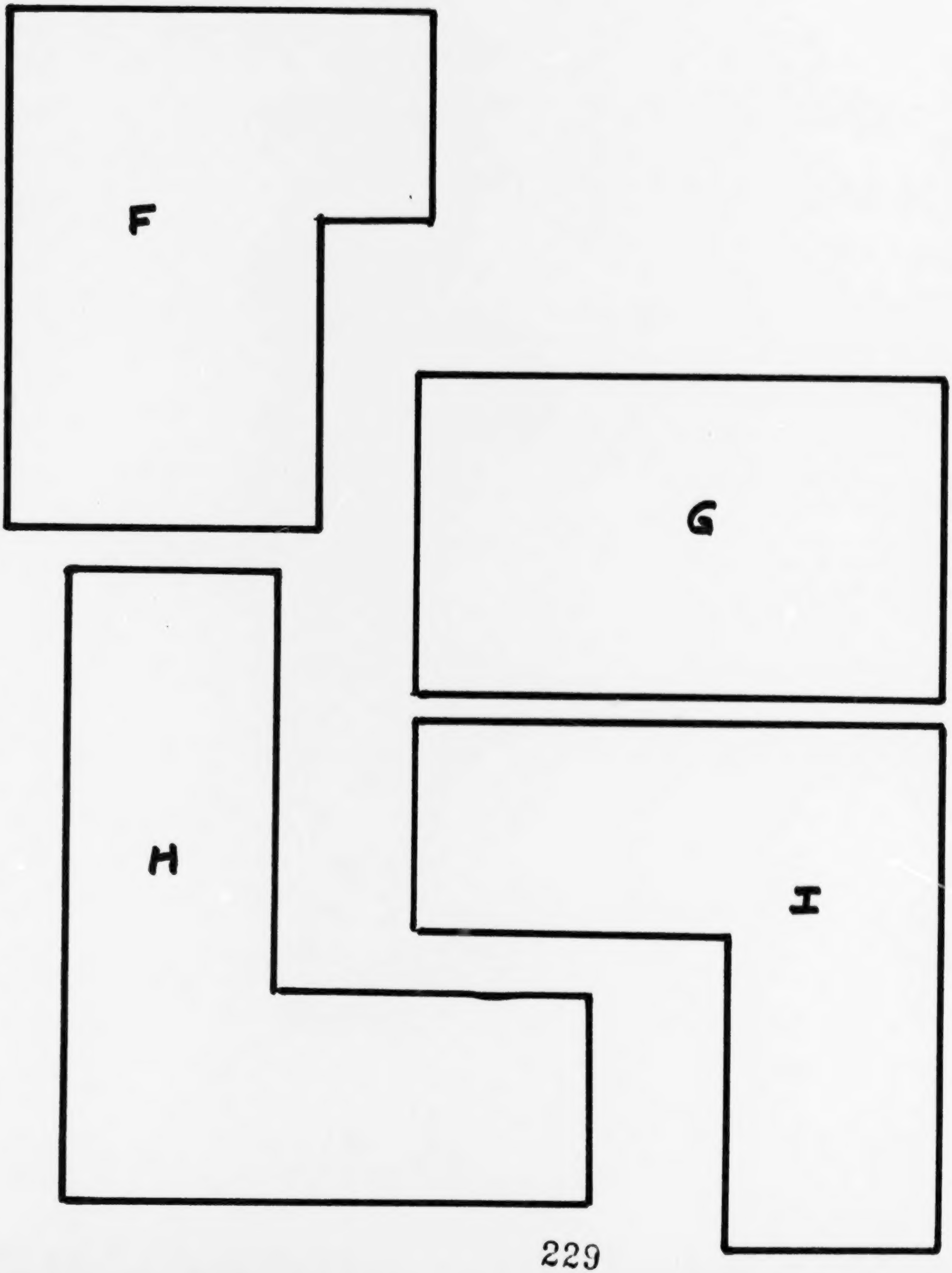
SHAPE A	SHAPE B	GREATER AREA	GREATER PERIMETER
			
			
			

Mathematician: ______________________________

"I used graph paper to find the areas of these shapes in square inches."

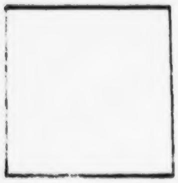
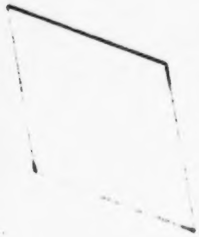
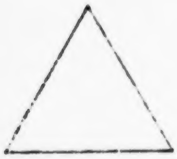
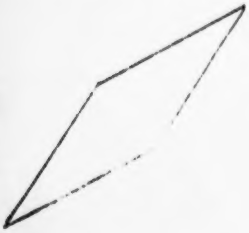
SHAPE	AREA	SHAPE	AREA
A		F	
B		G	
C		H	
D		I	
E			


A
B
C
D
E


F
G
H
I

Mathematician:____

"I use pattern blocks to complete this chart."

Pattern Block	VALUE OF OTHER BLOCKS			
THAT IS ONE	G	B	R	Y
				
				
				
				

Mathematician:____

AREAS OF LARGEST TO SMALLEST PATTERN BLOCKS

SHAPE	AREA USING ☐ = ONE
Largest	

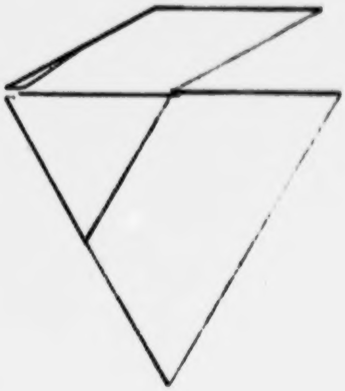
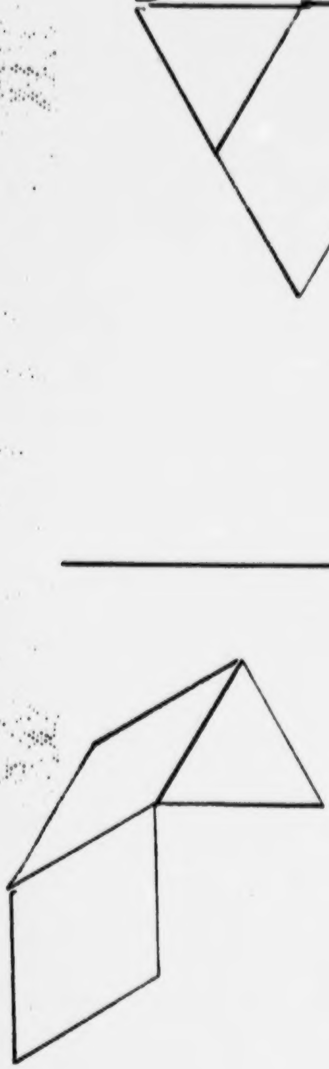
Mathematician: ______________________________

AREAS OF LARGEST TO SMALLEST PATTERN BLOCKS

SHAPE	AREA USING = ONE
Smallest	

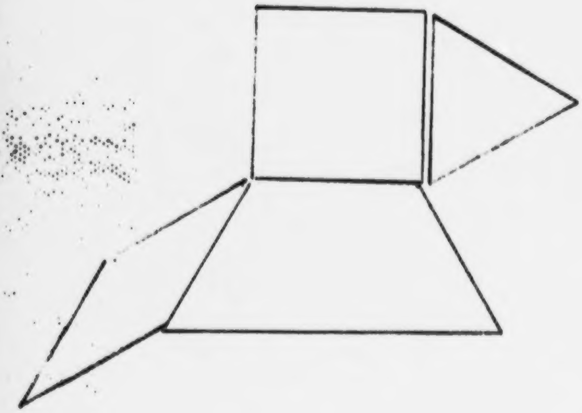
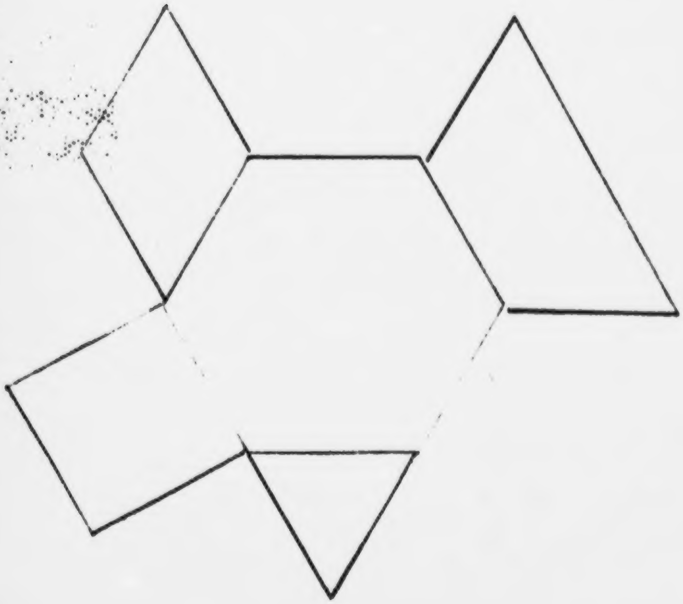
Mathematician:____

"I made mirror images of the pattern block pattern given."

PATTERN	MIRROR IMAGE
	
	

Mathematician:____

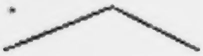
"I made mirror images of the pattern block pattern given."

PATTERN	MIRROR IMAGE
	
	

Mathematician:____

"I used pattern blocks to finish the table. I traced sides, angles and shapes as I had to."

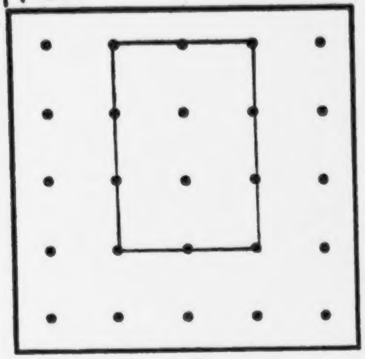
ANGLE SIZES FROM LARGEST TO SMALLEST

Angle	Shapes found on
Example: 	Tan (or grey)

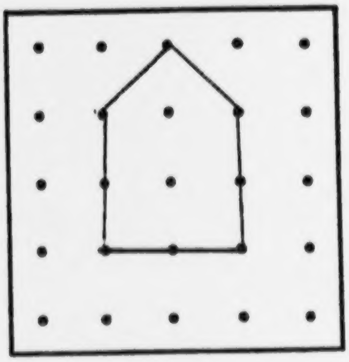
Mathematician:____

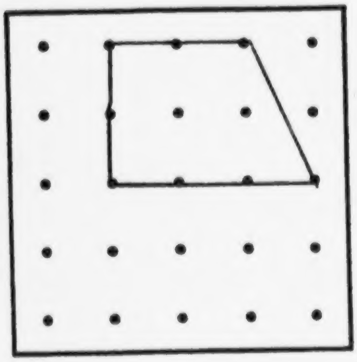
"I found the perimeter of each shape and wrote it below the shape for each geoboard."

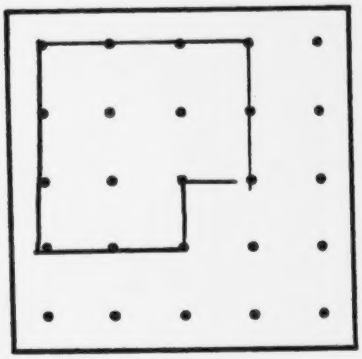
EXAMPLE:

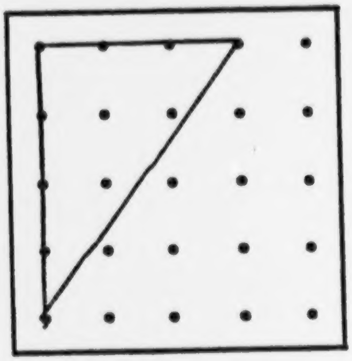


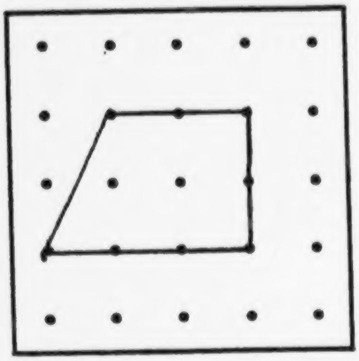
10

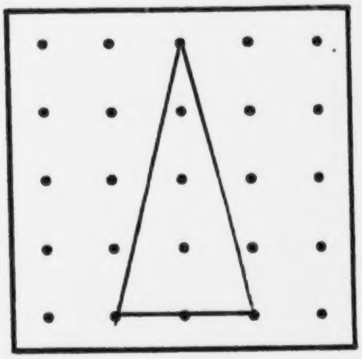


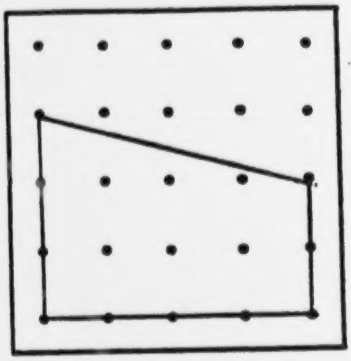


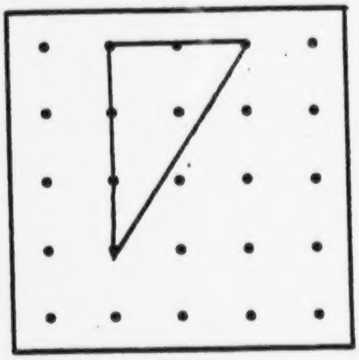






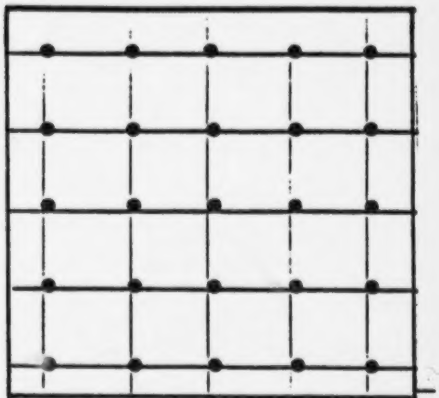
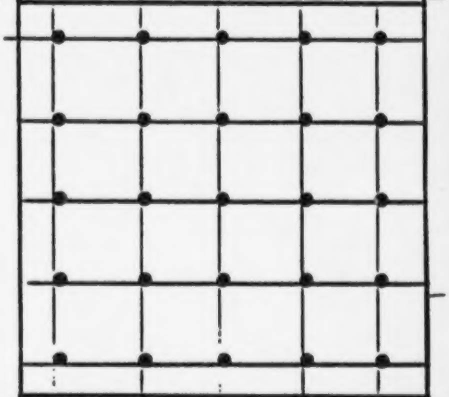
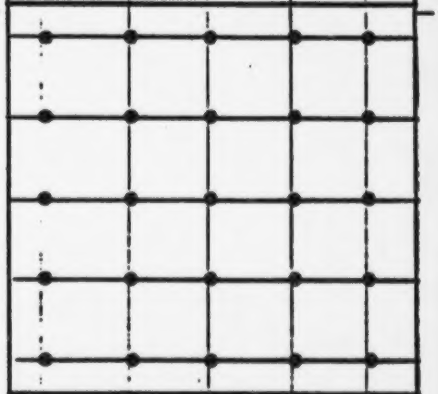
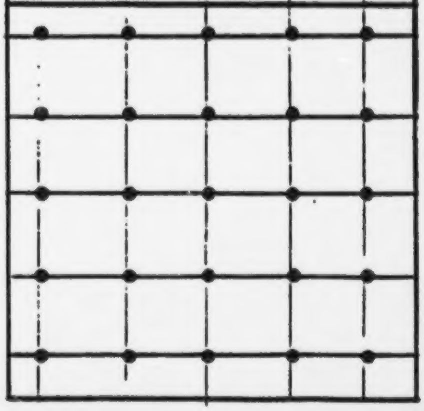






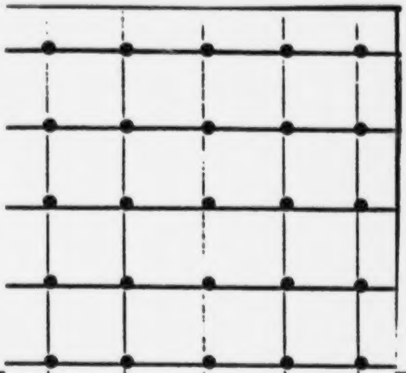
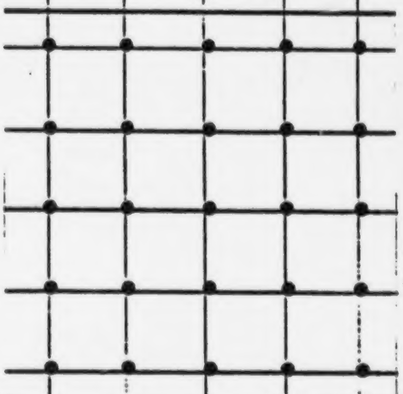
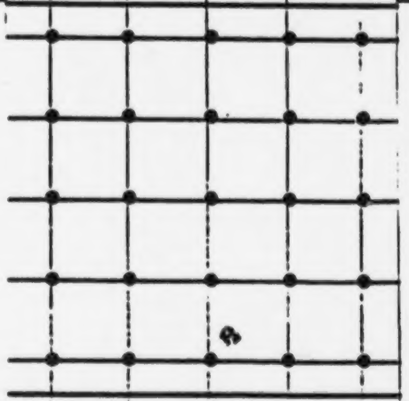
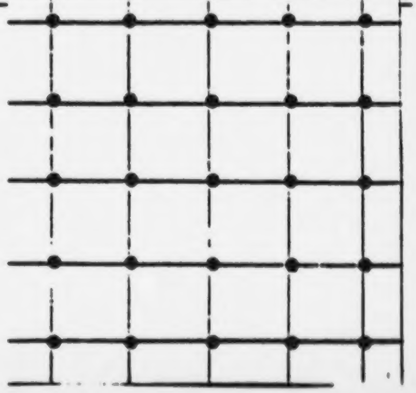
Mathematician:____

"I made these shapes on the geoboard and recorded the results."

Shape	Area	Perimeter Record	
Triangle	2		
	3		
	5		
Triangle and Rectangle	Equal		

Mathematician:____

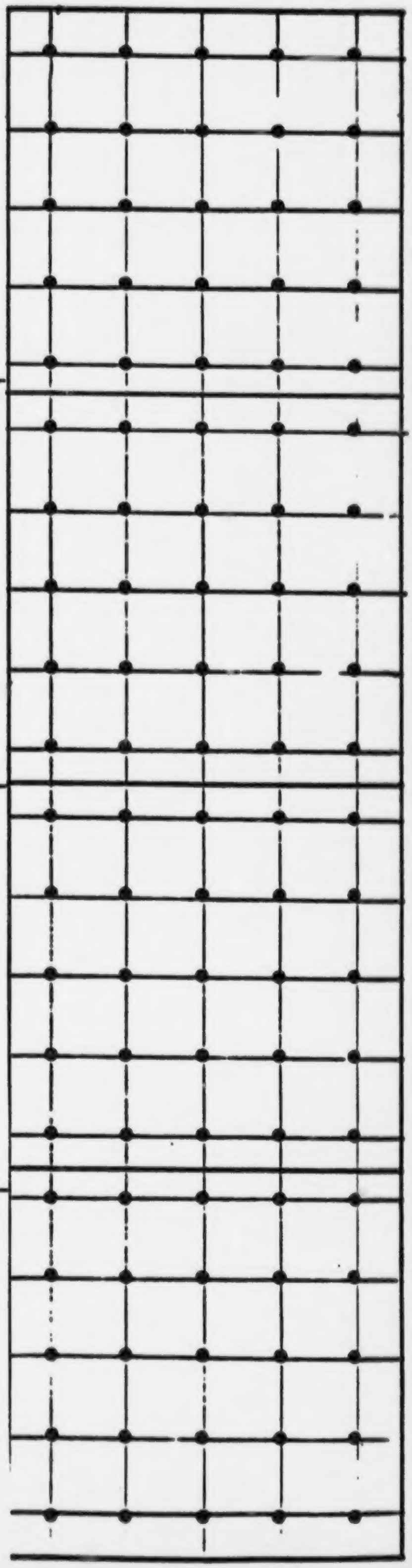
"I made these shapes on the geoboard and recorded the results."

Shape	Area	Perimeter Record	
A five sided shape			
A triangle	3		
A four sided shape, not a square or a rectangle			
Square and a Rectangle	Equal		

Mathematician:____

"I made these shapes on the geoboard and recorded the results."

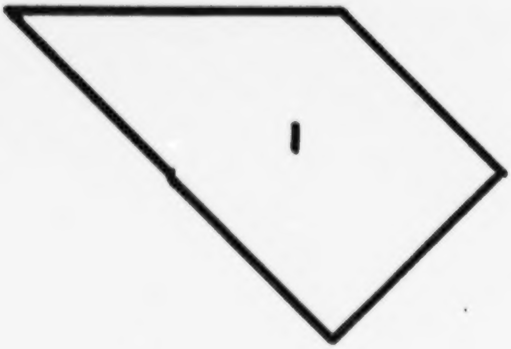
Shape	Area	Perimeter Record	
Pattern Block Hexagon			
Pattern Block Diamond			
A six sided shape			
A square and a five sided shape	Equal		

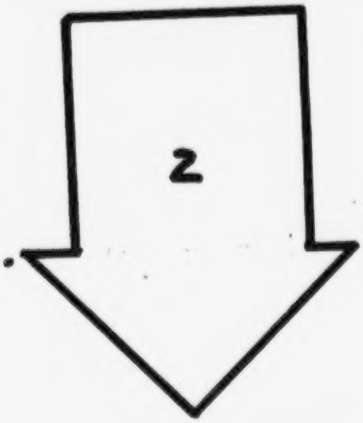


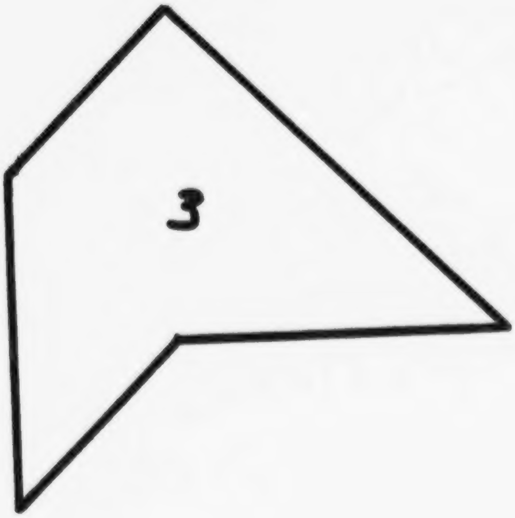
Mathematician: ____________________

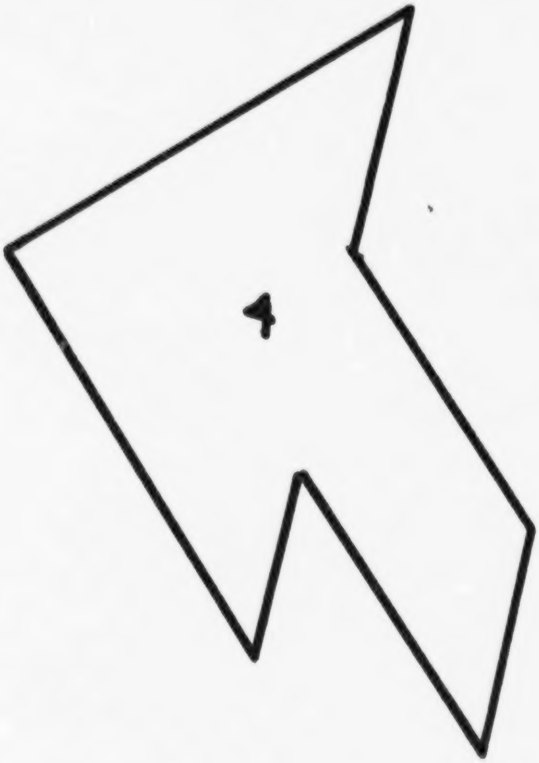
PERIMETERS FROM LARGEST TO SMALLEST

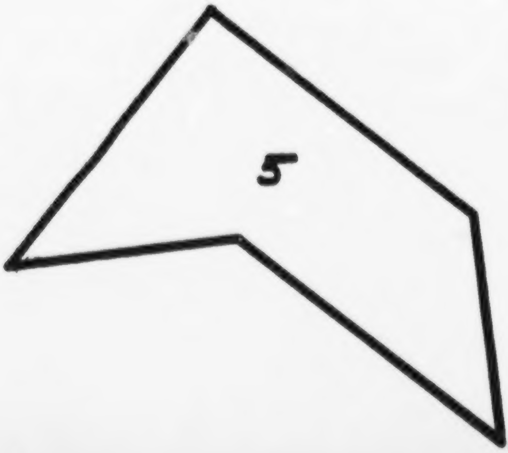
SHAPE	PERIMETER - MOST COMMON SIDE = 1

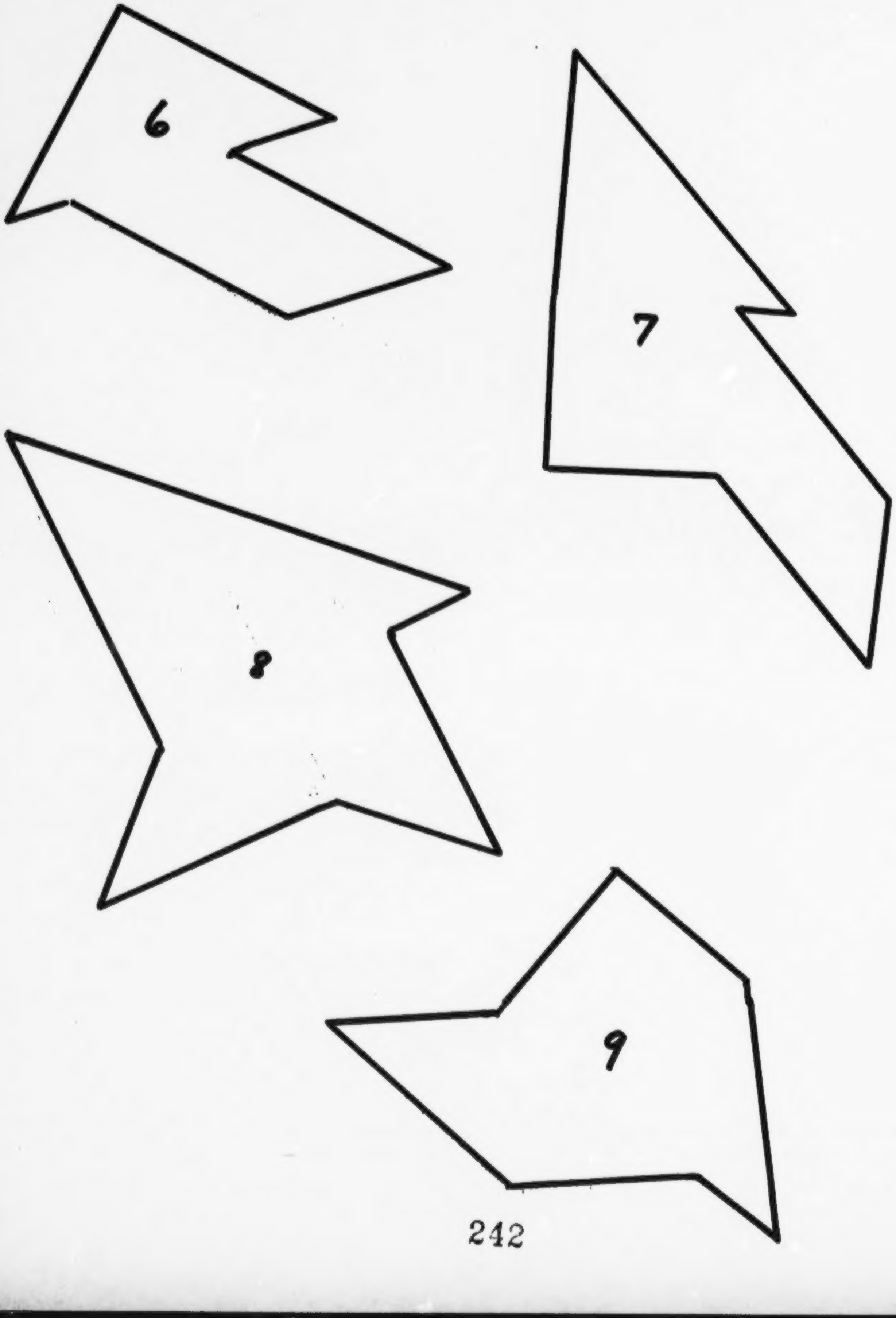

1


2


3

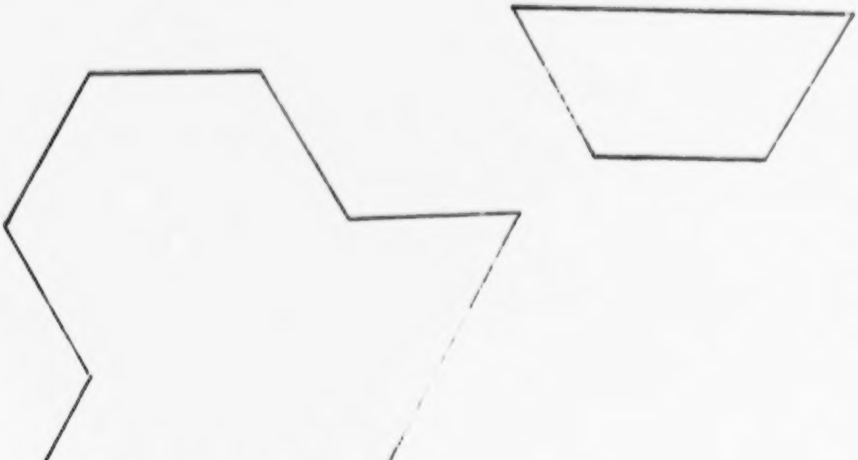

4


5



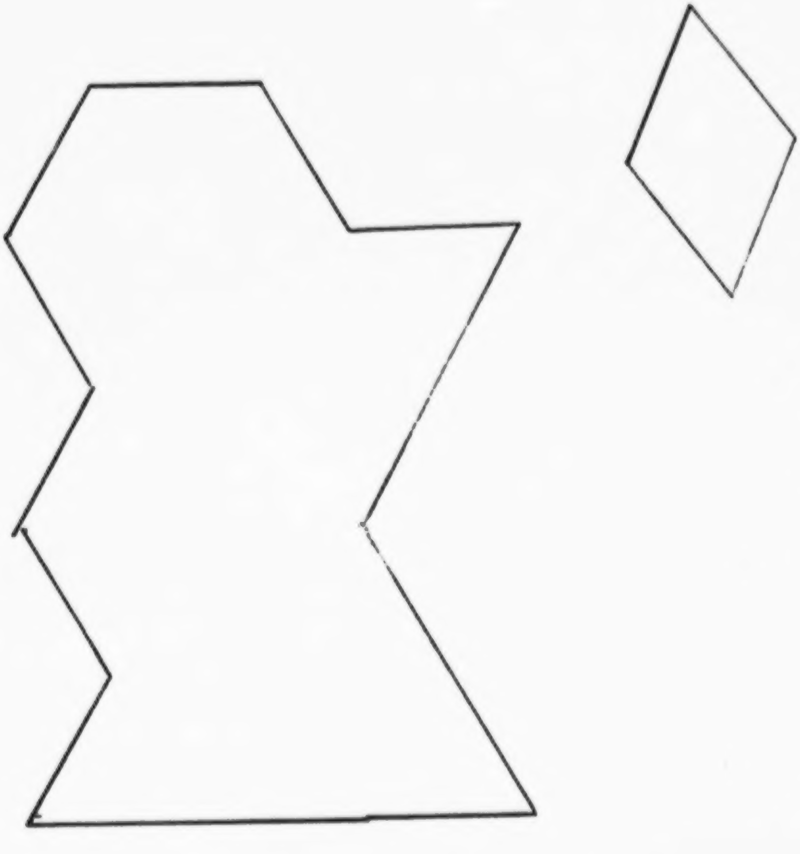
Mathematician:____

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



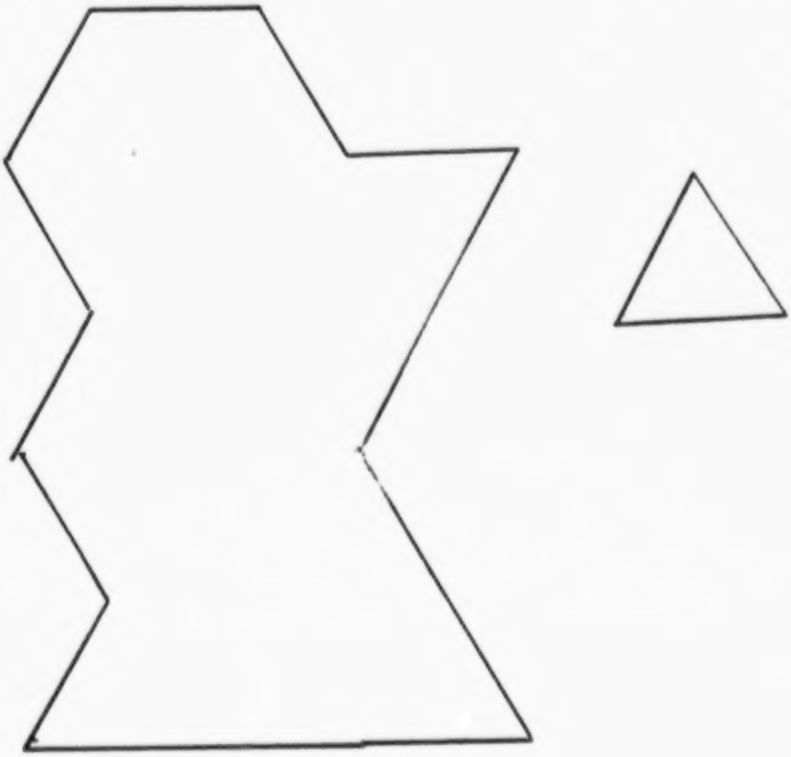
Mathematician:____

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



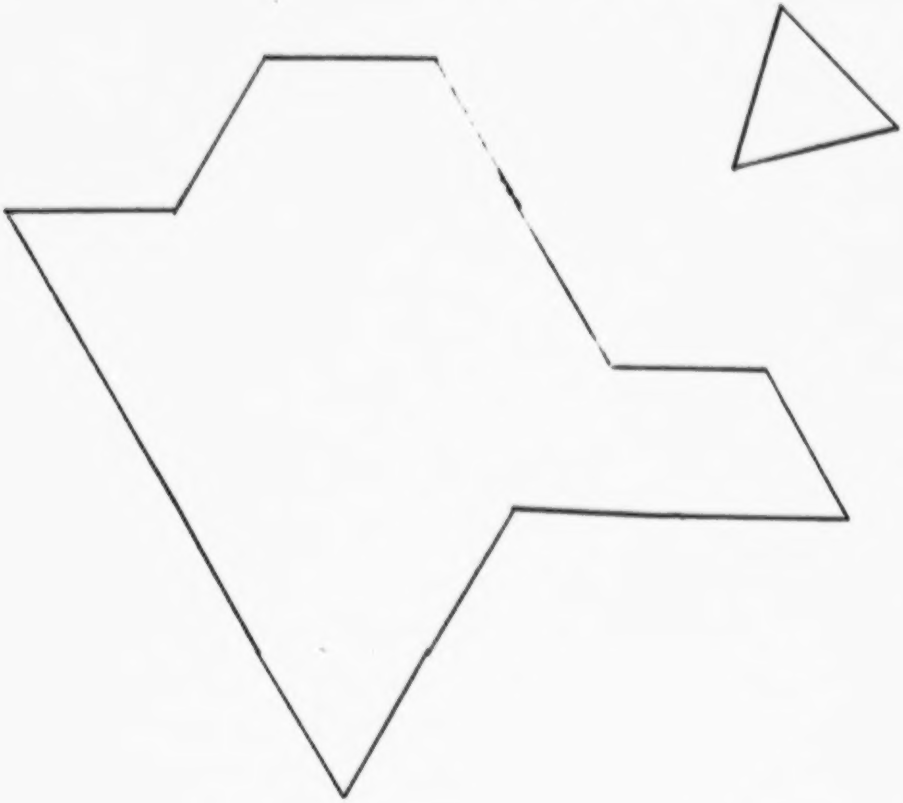
Mathematician:____

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



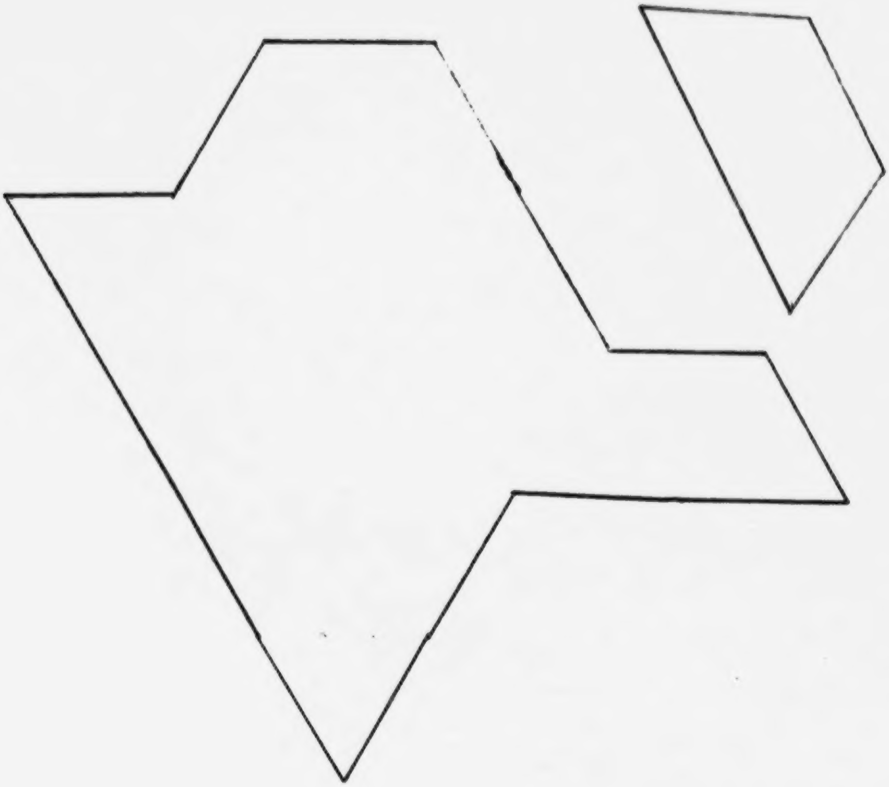
Mathematician:____

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



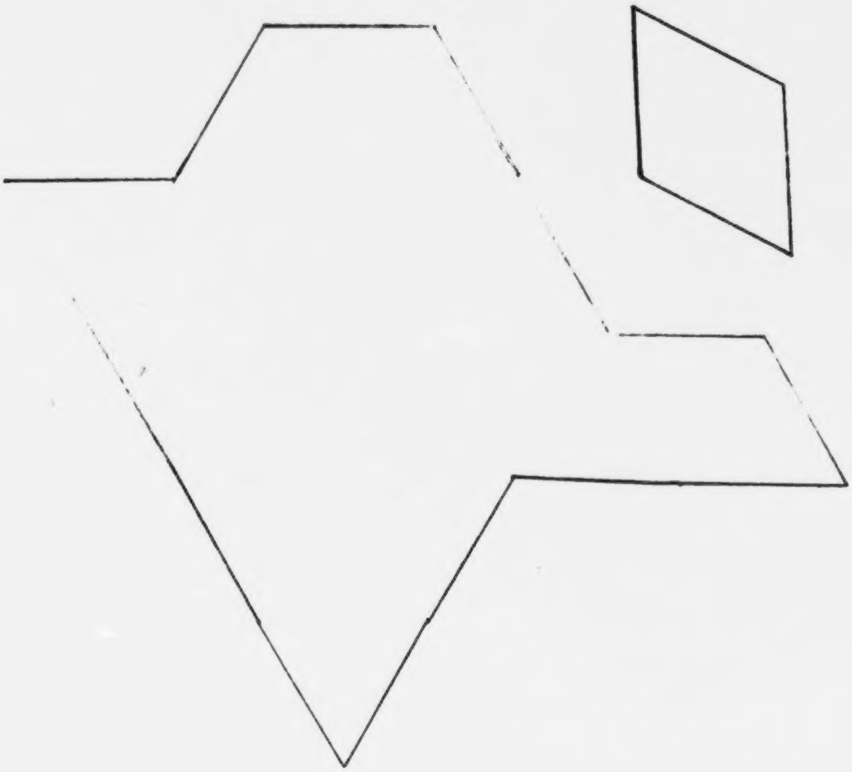
Mathematician:______________________________________

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



Mathematician:____

"I covered each of the larger shapes with several of the smaller shapes. I wrote on each larger shape the number used to cover it."



Mathematician:____

"More of my adding and subtracting money."

$ 2.98 + 1.49	$ 2.98 - 1.49	$ 8.44 + .69	$ 8.44 - .69
$ .49 1.36	$ 1.33 - .89	$ 3.00 - 2.13	$ 5.00 - 3.89
$ .50 - .39	$ .24 + .69	$ 1.50 - 1.29	$10.00 - 8.72
$ 1.00 - .89	$ .69 + 1.29	$ .43 + 1.81	$ 1.28 + 4.72
$ 2.00 - 1.23	$ 3.25 - 3.04	$ 1.83 + 4.79	$ 5.22 + 3.41
$ .49 .71 + .38	$ 1.21 3.49 + .89	$ 5.23 4.89 + 3.07	$ 1.83 .69 + 4.81

Mathematician:____

"I found total costs and made change for the following. I wrote $ to show money for all amounts."

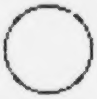
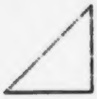
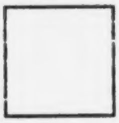
DOLLARS $	CENTS	DOLLARS $	CENTS	DOLLARS $	CENTS
EXAMPLE 6	29	6	00	10	00
− 5	00	− 5	29	− 4	29
$ 0	71				
20	00	10	00	3	00
− 11	98	− 6	44	− 2	49
5	00	2	00	6	00
− 3	98	− 1	33	− 3	42

Mathematician:____

"I found total costs and made change for the following. I wrote $ to show money for all amounts."

DOLLARS	CENTS	DOLLARS	CENTS	DOLLARS	CENTS
$		$		$	
1	00	20	00	10	00
	75	16	39	7	33
5	00	2	00	3	00
− 3	98	− 1	49	− 2	09
25	00	15	00	30	00
− 21	39	− 11	98	−26	49

LABEL CARDS

RED	**CIRCLE** 
BLUE	**RECTANGLE**
GREEN	**LARGE**
TRIANGLE 	**SMALL**
SQUARE 	

"NOT" LABEL CARDS

NOT BLUE

NOT GREEN

NOT RED

NOT TRIANGLE

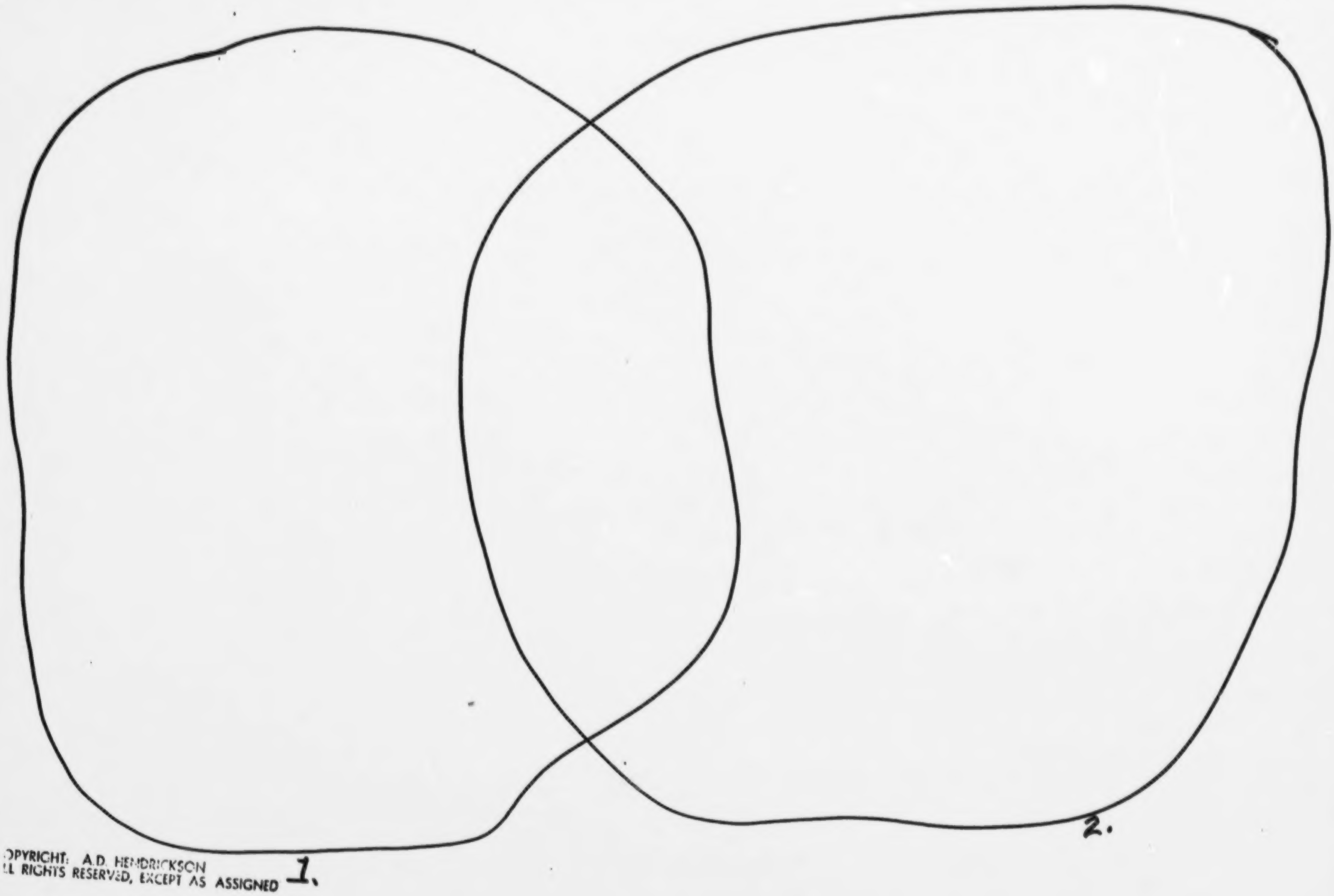
NOT SQUARE

NOT RECTANGLE

NOT CIRCLE

NOT LARGE

NOT SMALL



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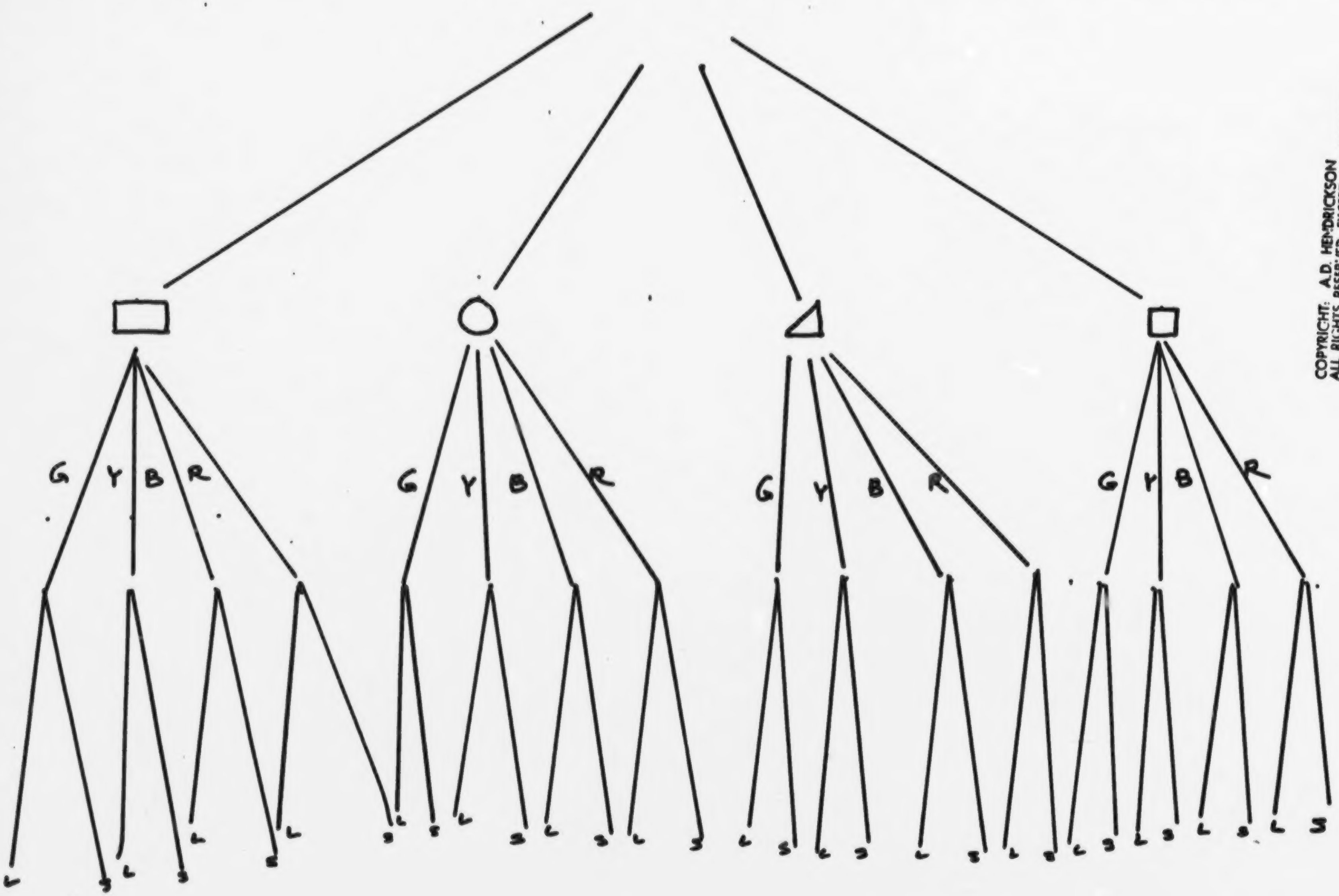
G Y B R
G Y B R
G Y B R
G Y B R
L S L S L S L S
L S L S L S L S
L S L S L S L S
L S L S L S L S

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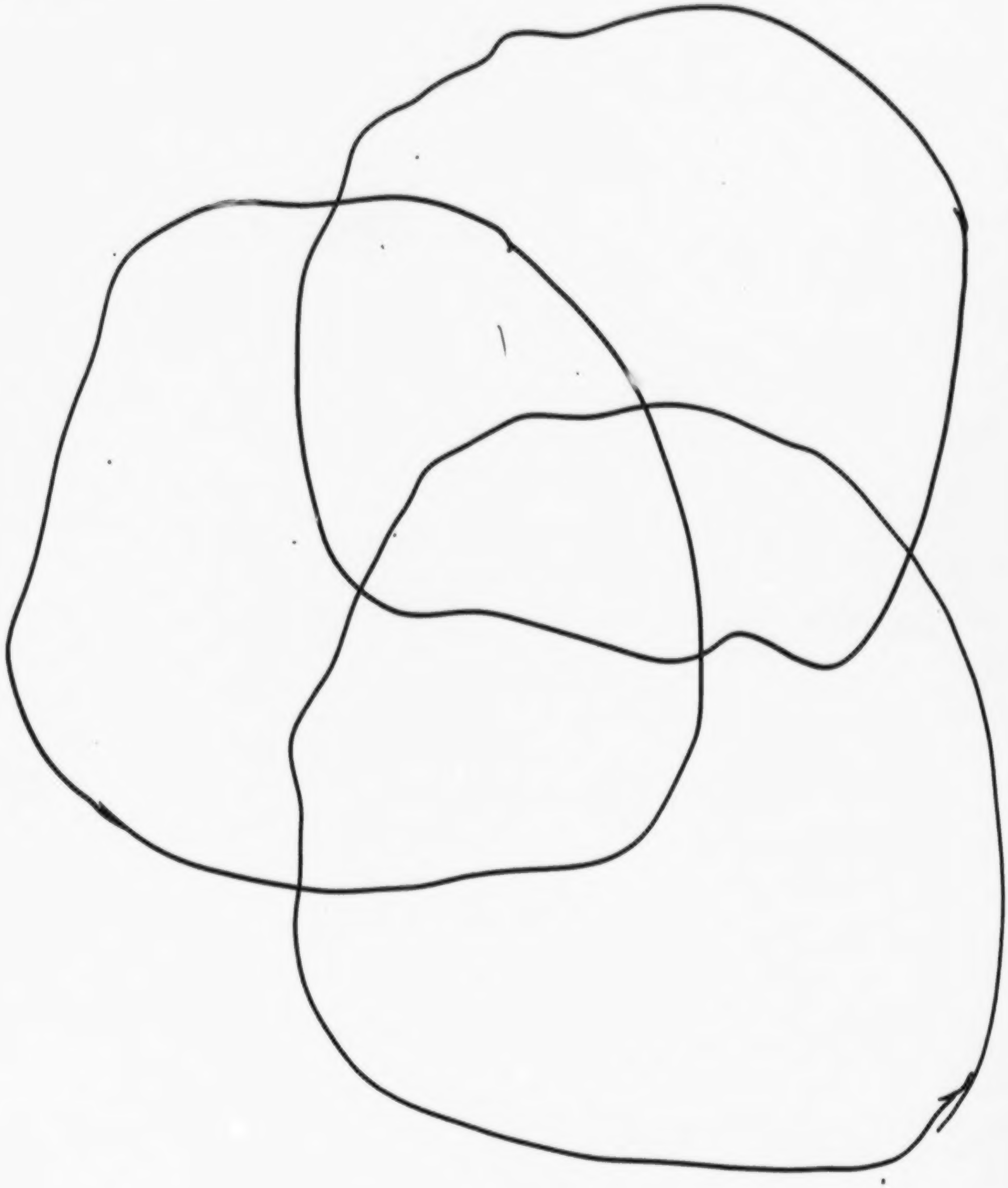

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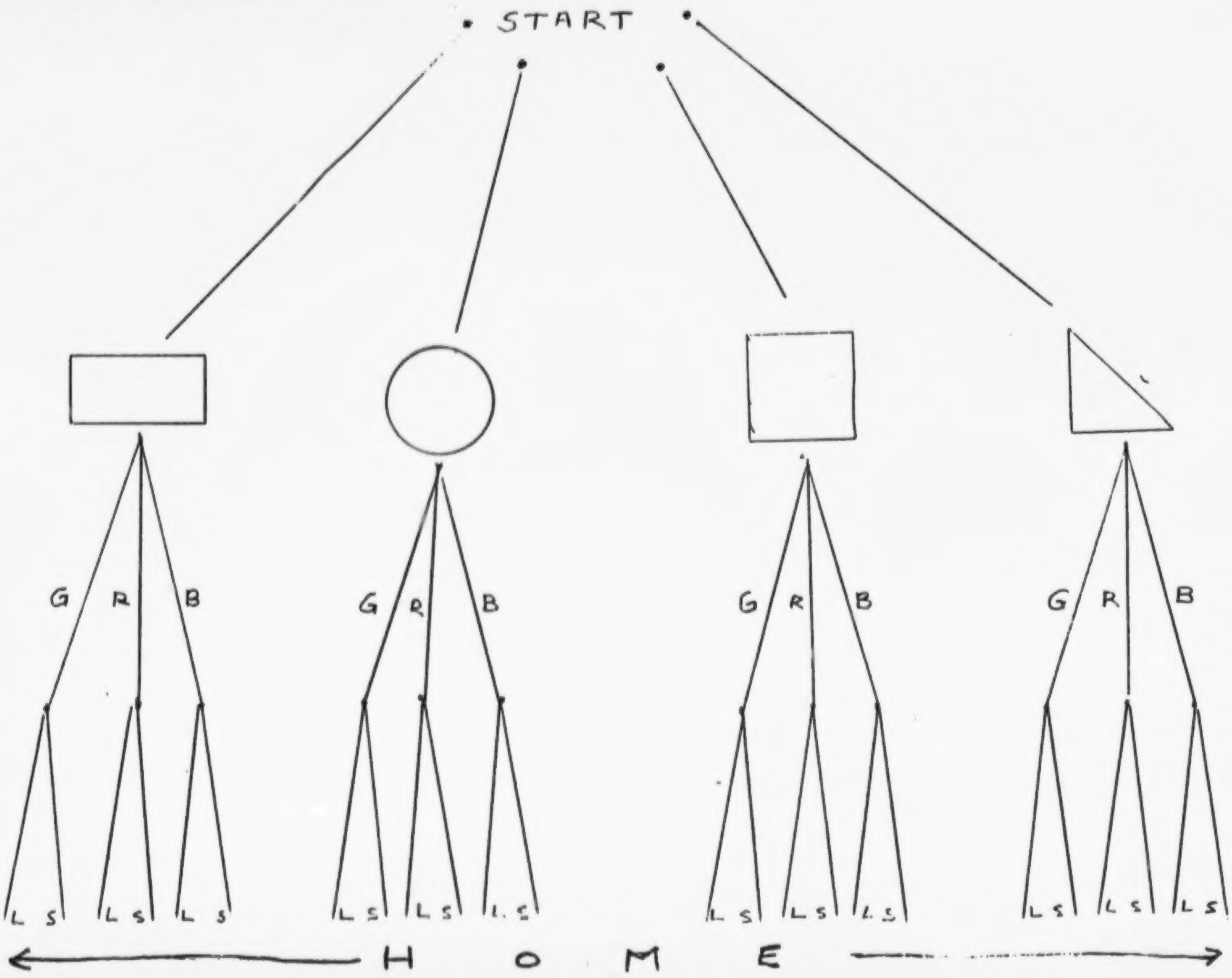
Mathematician:____

"I traced a path in red for the small red circle to go HOME. I traced a path in blue for the large blue square to go HOME. I traced a path in green for the small green triangle to go HOME.


START
G
R
B
G
R
B
G
R
B
G
R
B
L S
L S
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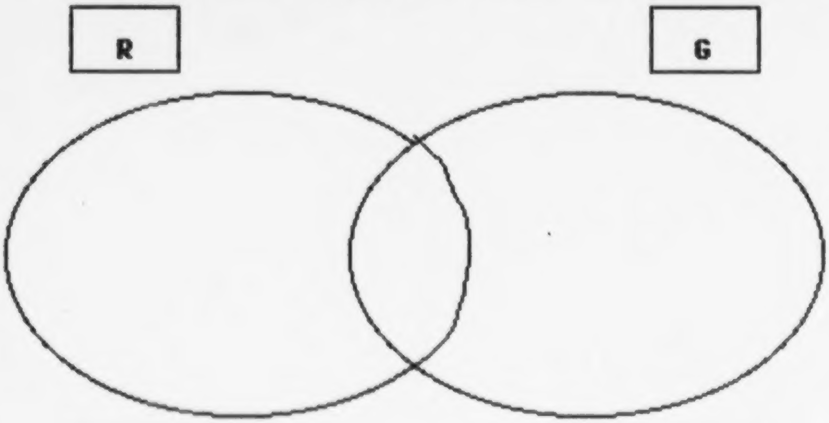
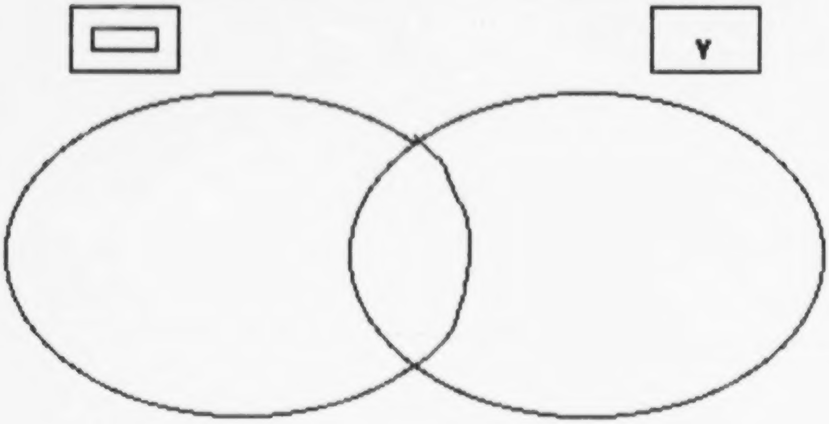
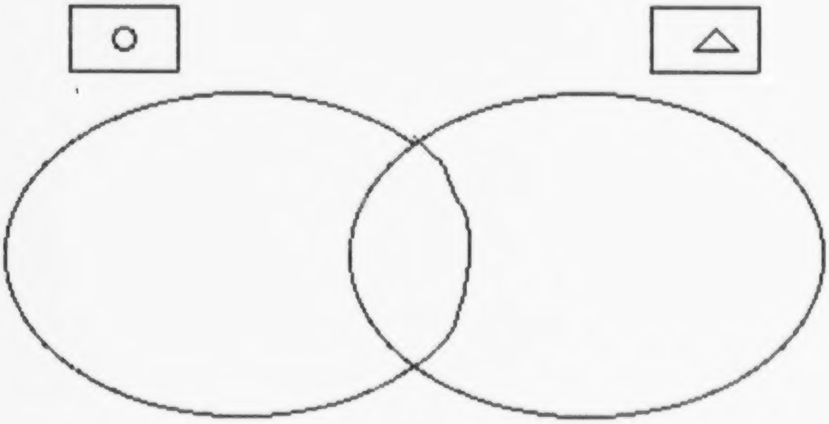
L S
L S
L S
H O M E

Mathematician:____

"I sorted attribute pieces on the workmat so they were inside the right loops. I drew shapes and colored them to show where the pieces all went. (Logic Two)."

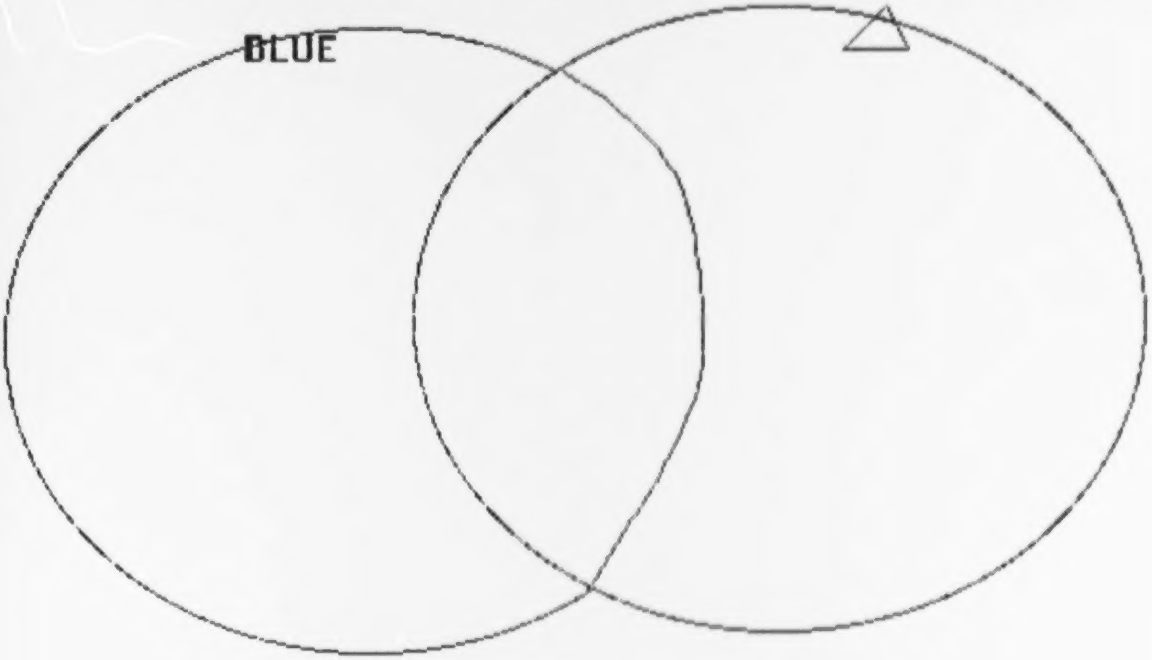


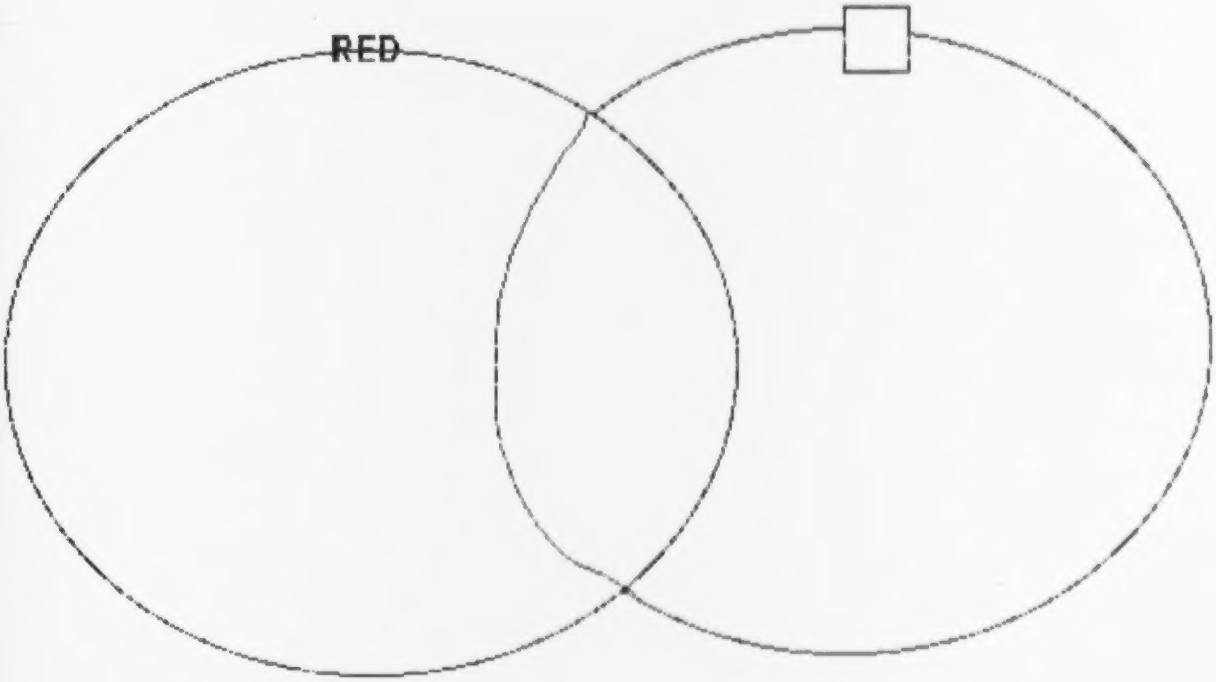




Mathematician:____

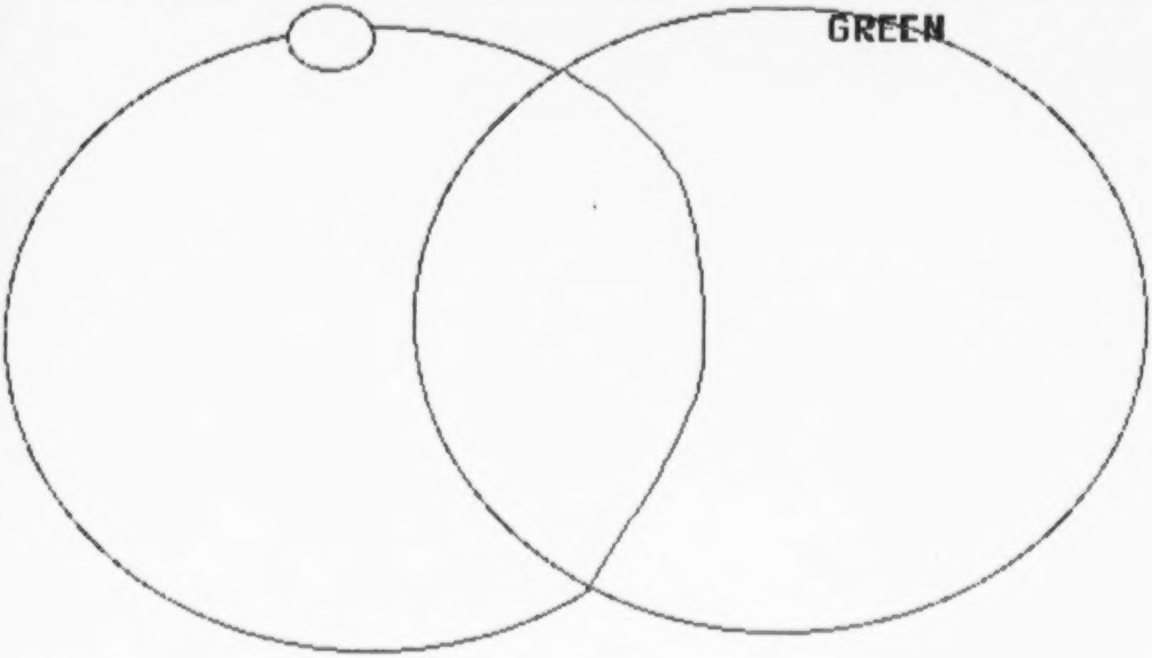
"I sorted attribute pieces on the workmat so they were inside the right loops. I drew shapes and colored them to show where the pieces all went."

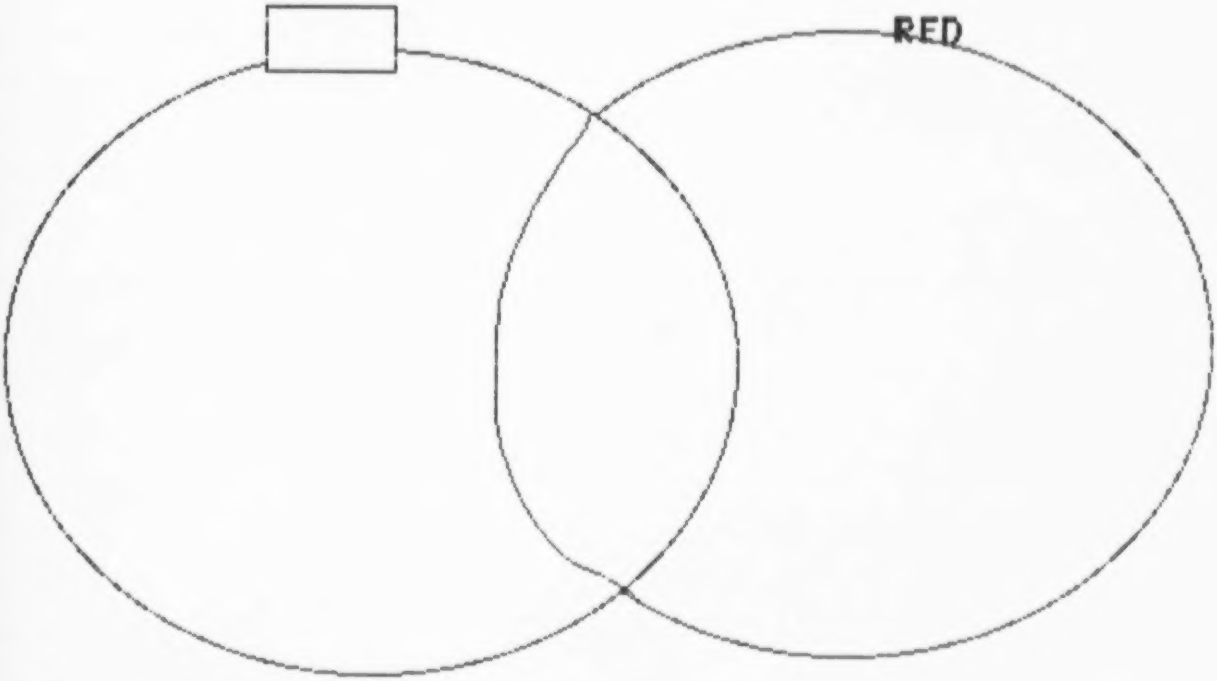




Mathematician:____

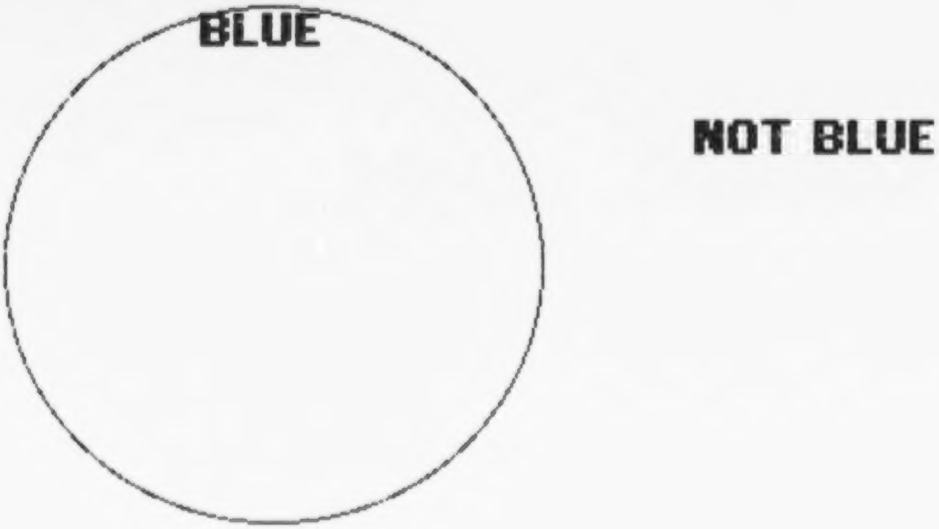
"I sorted attribute pieces on the workmat so they were inside the right loops. I drew shapes and colored them to show where the pieces all went."

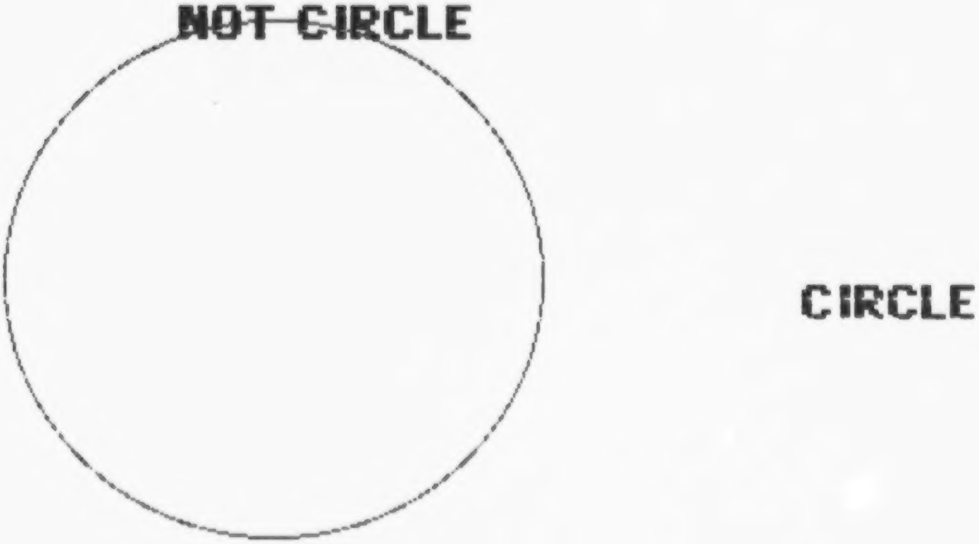




Mathematician:____

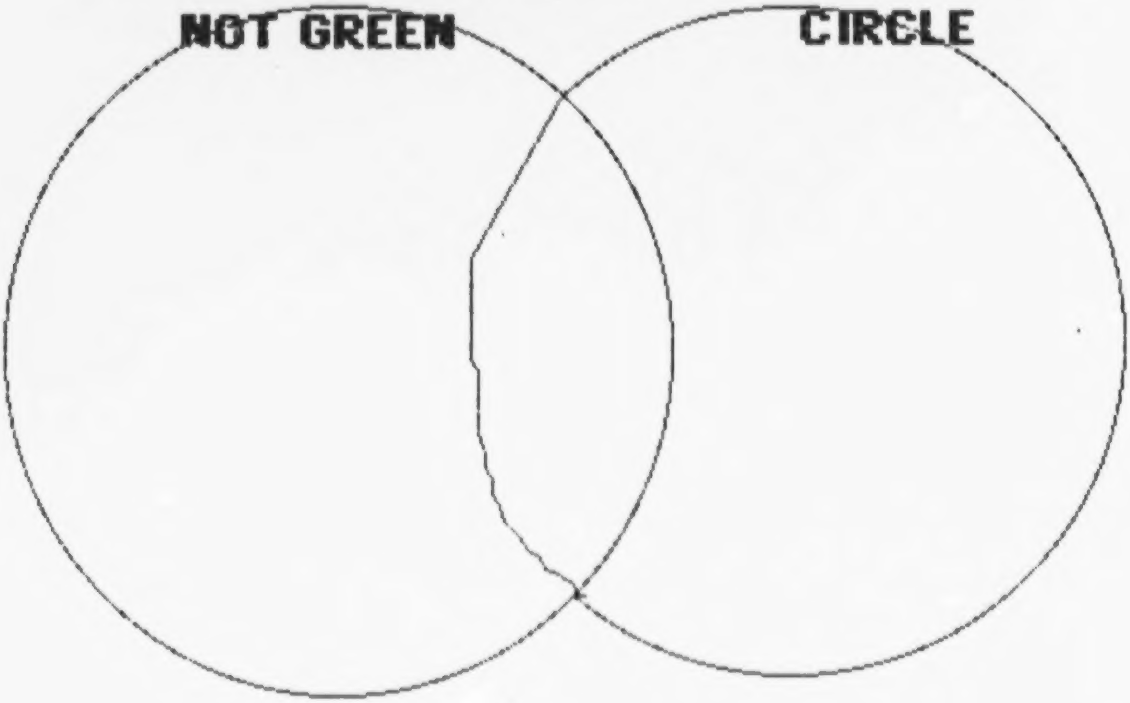
"I placed all pieces HAVING the property given INSIDE the loop and all pieces NOT HAVING that property OUTSIDE the loop. I drew the pieces and colored them."

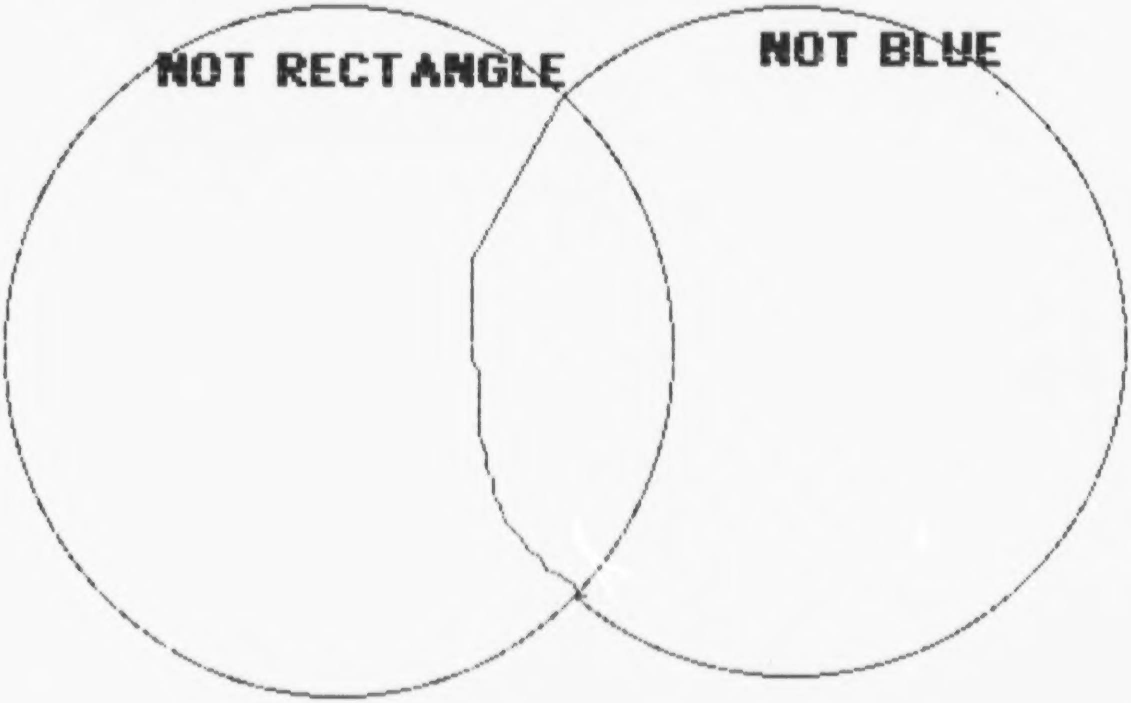

BLUE
NOT BLUE


NOT CIRCLE
CIRCLE

Mathematician:____

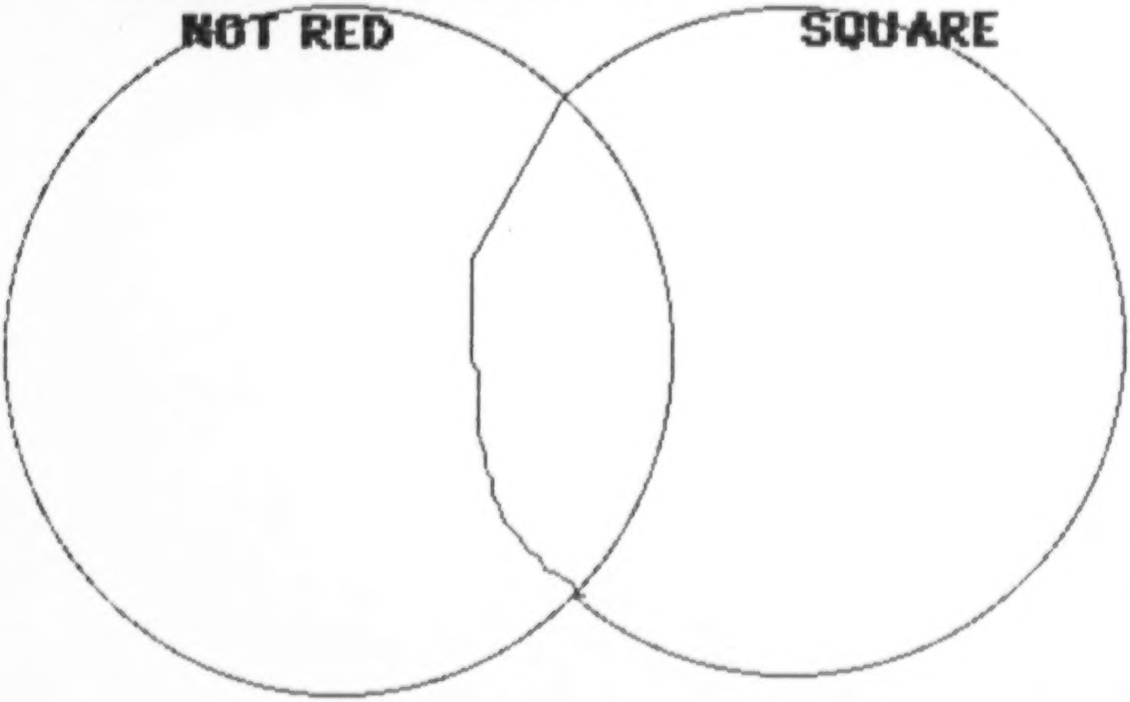
"I placed pieces in the right places on the workmat. I drew the shapes in the right place and colored them to show how I sorted them."

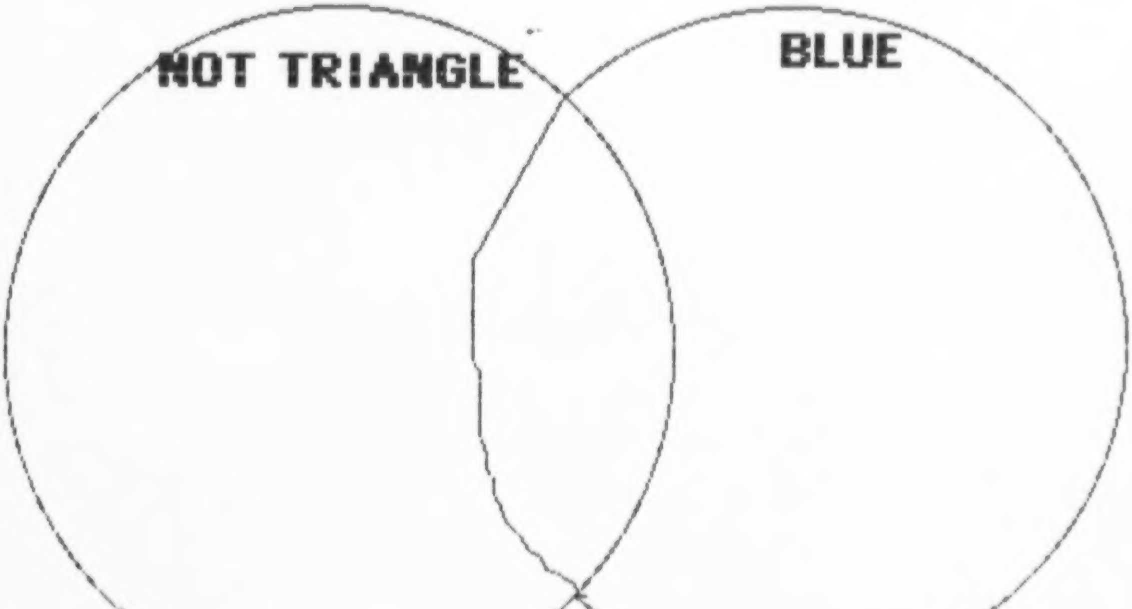

NOT GREEN
CIRCLE


NOT RECTANGLE
NOT BLUE

Mathematician:. ______________________________

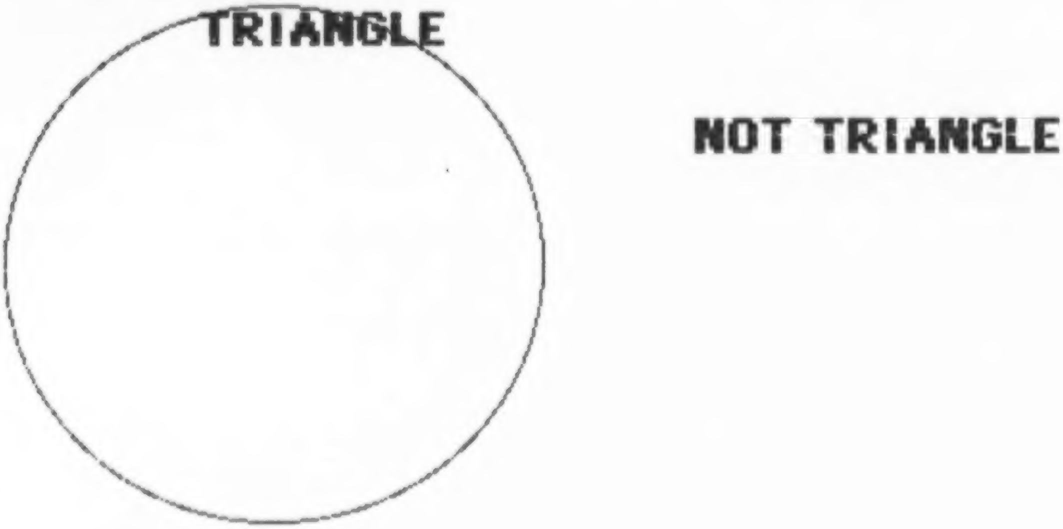
"I placed pieces in the right places on the workmat. I drew the shapes in the right place and colored them to show how I sorted them."

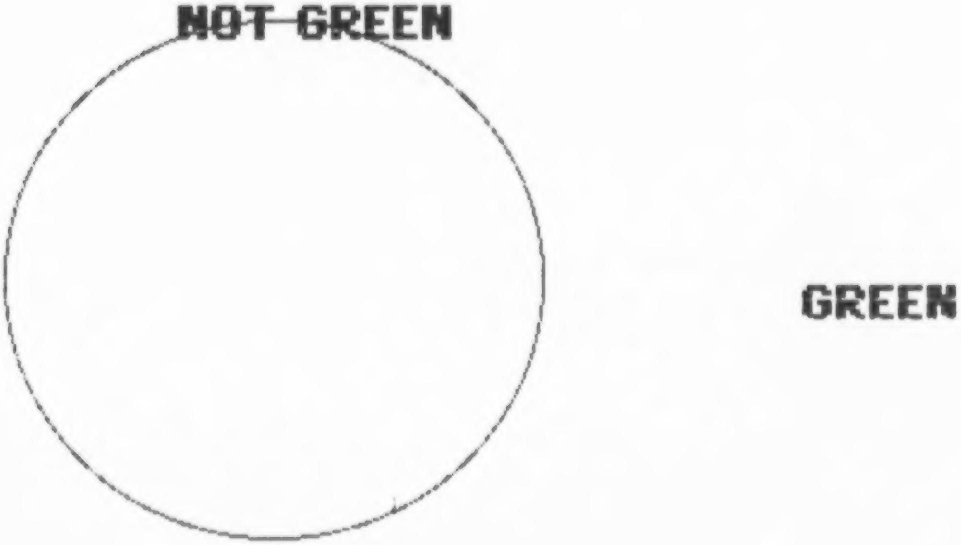

NOT RED
SQUARE


NOT TRIANGLE
BLUE

Mathematician:____

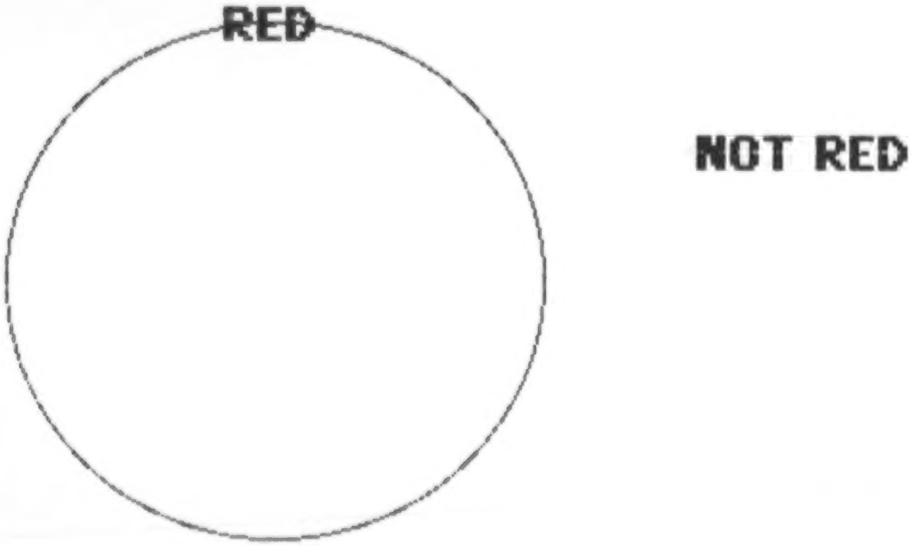
"I placed all pieces HAVING the property given INSIDE the loop and all pieces NOT HAVING that property OUTSIDE the loop. I drew the pieces and colored them."

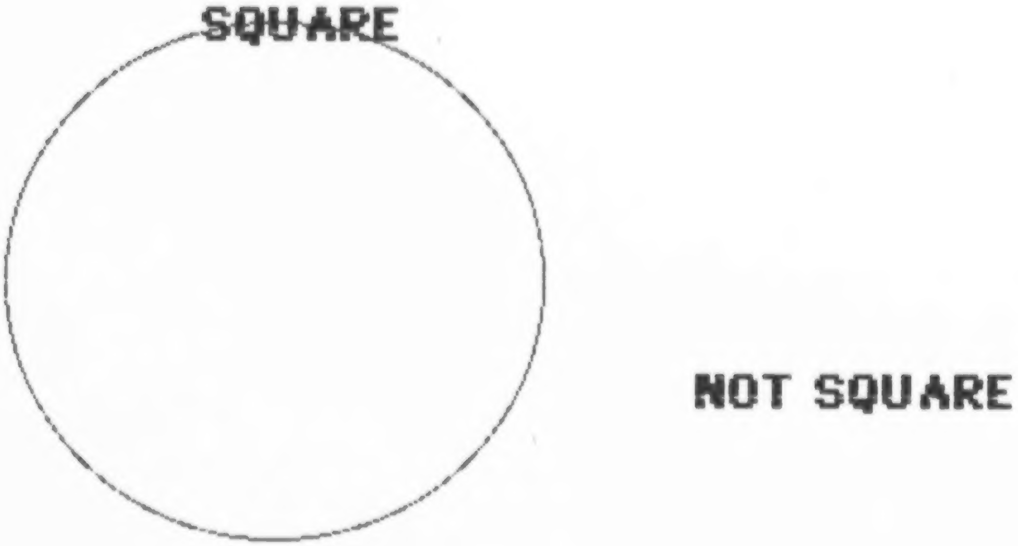

TRIANGLE
NOT TRIANGLE


NOT GREEN
GREEN

Mathematician:____

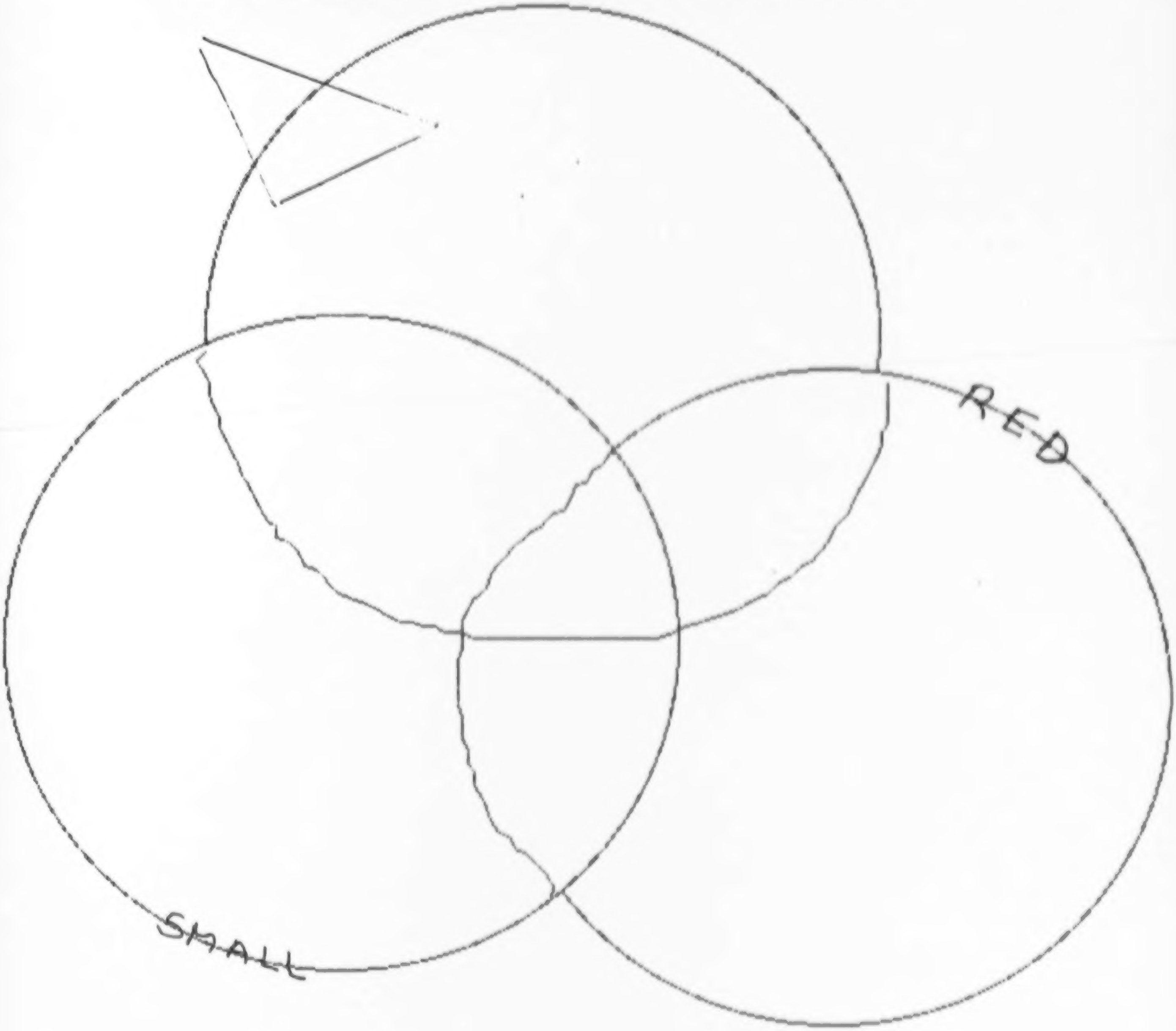
"I placed all pieces HAVING the property given INSIDE the loop and all pieces NOT HAVING that property OUTSIDE the loop. I drew the pieces and colored them."




SQUARE
NOT SQUARE

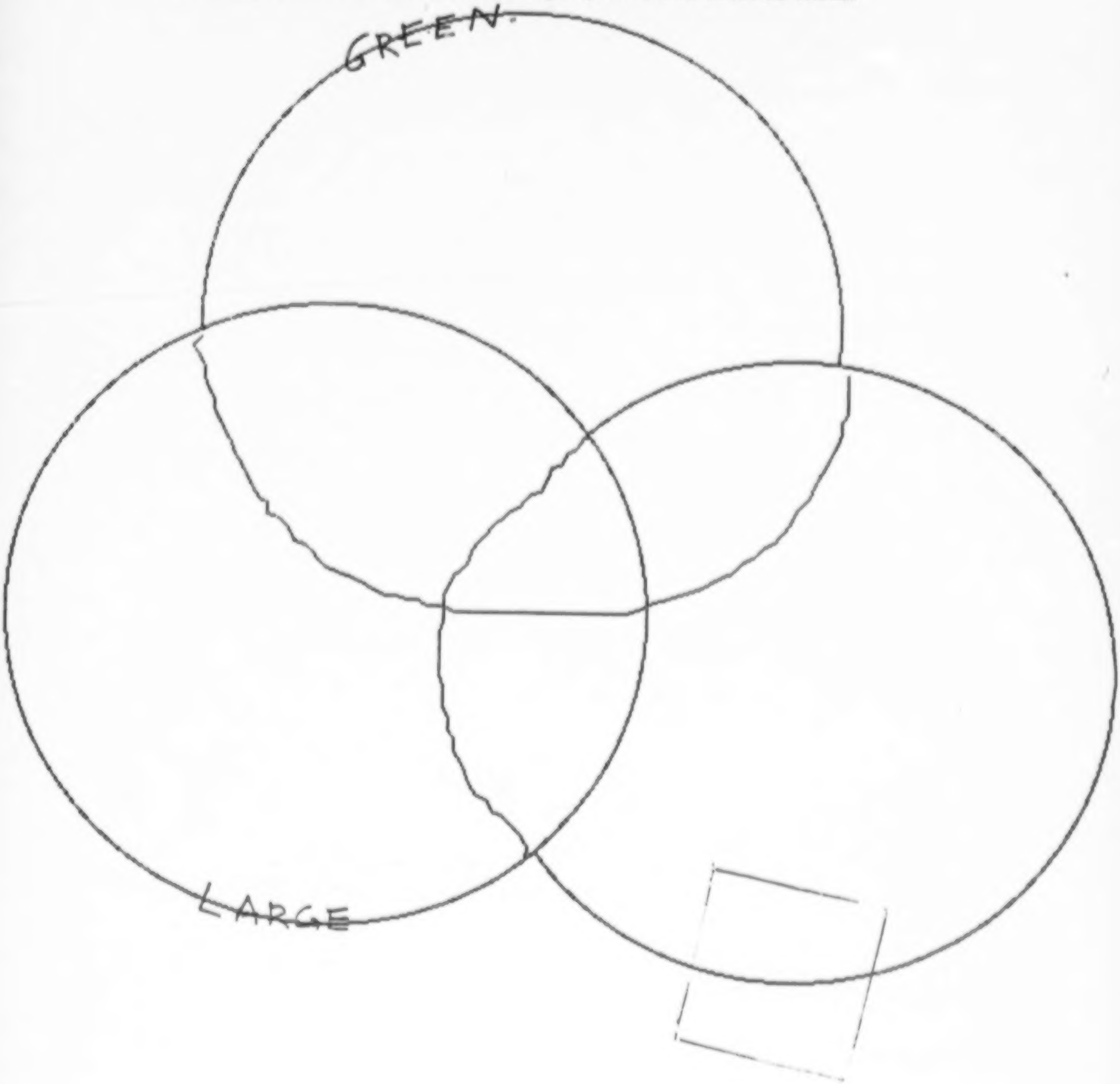
Mathematician:____

"I placed attribute pieces in the correct one of eight places on the workmat. I drew pictures of these in the right places and colored them."



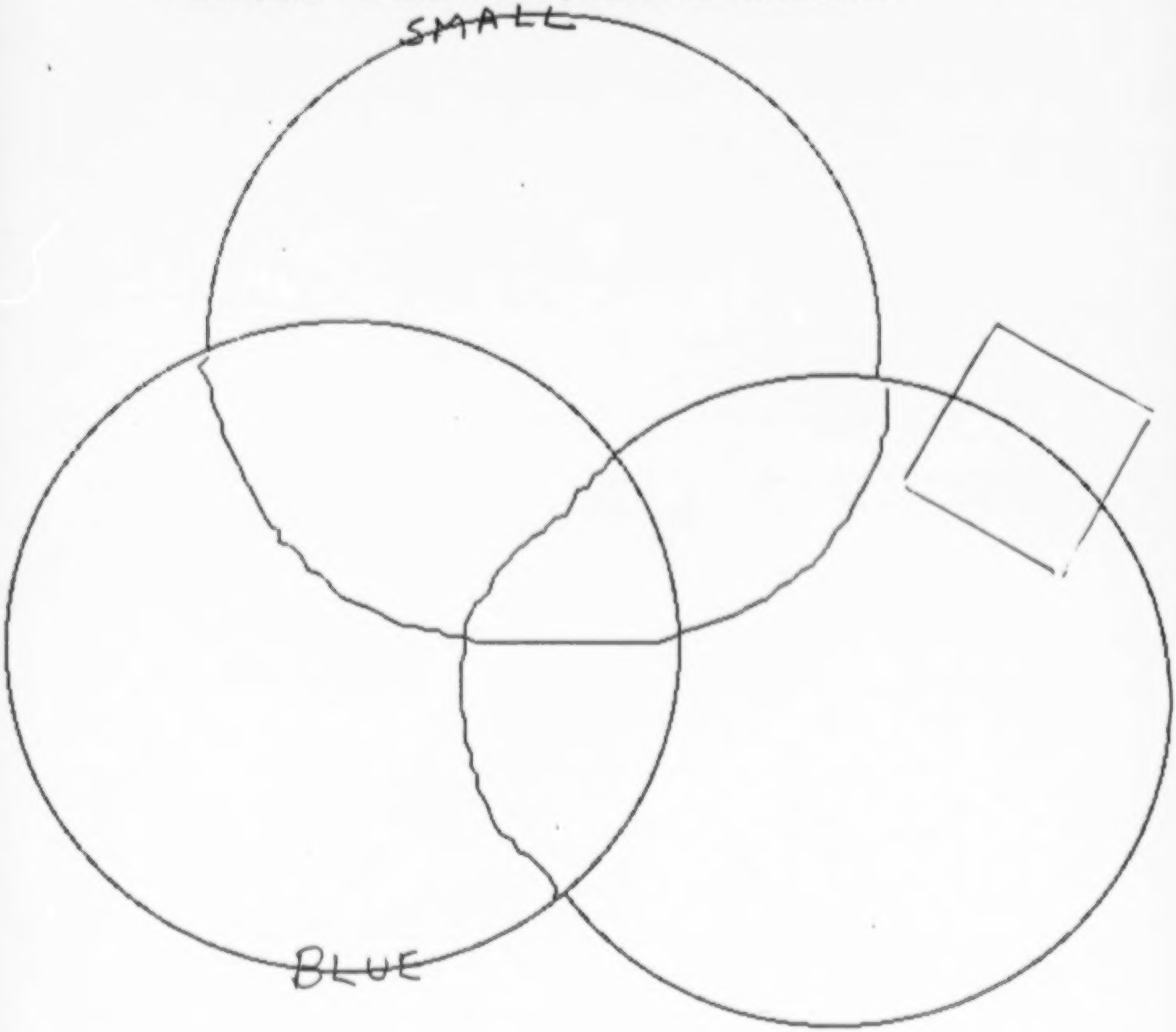
Mathematician:____

"I placed attribute pieces in the correct one of eight places on the workmat. I drew pictures of these in the right places and colored them."



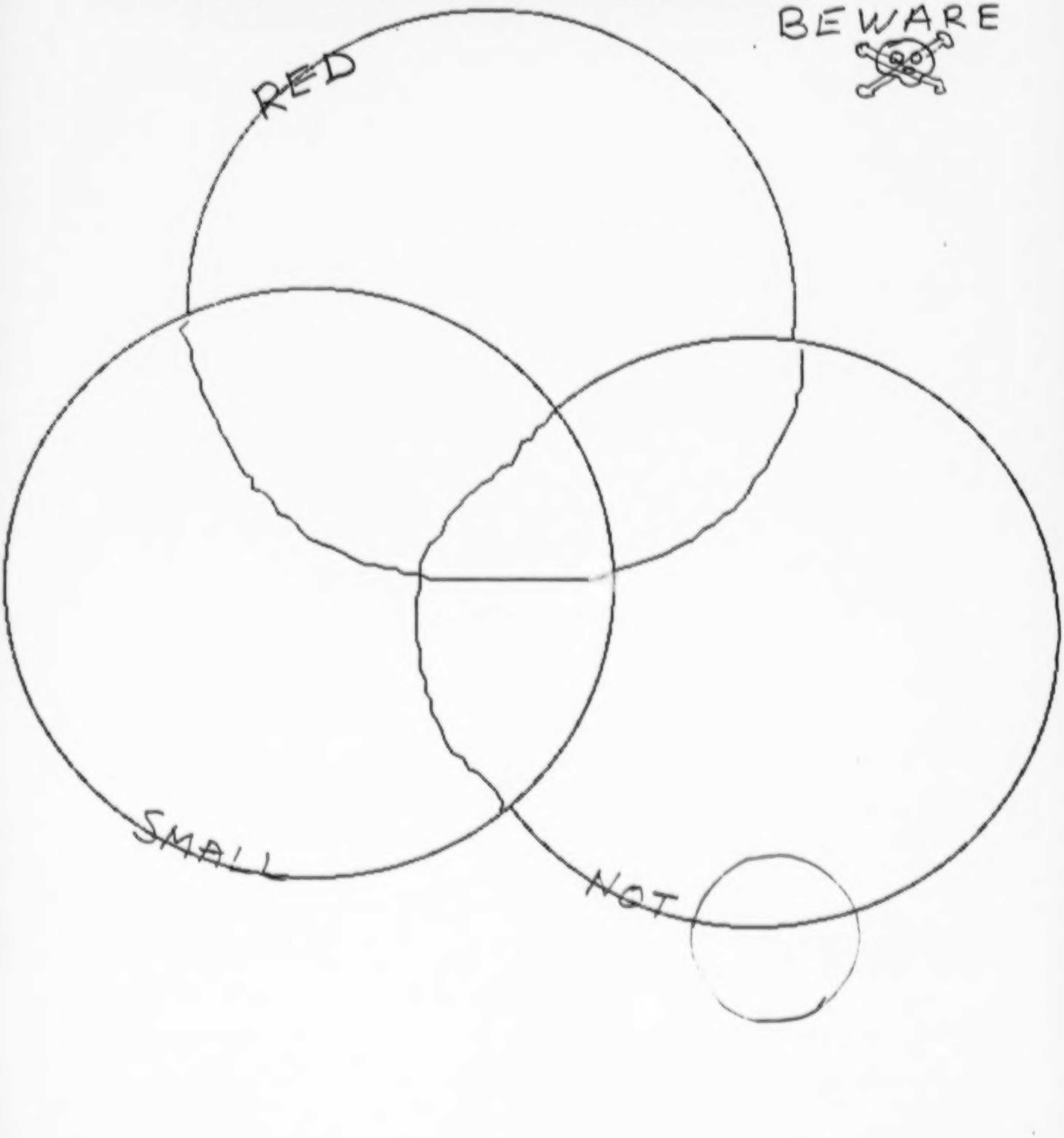
Methematician:____

"I placed attribute pieces in the correct one of eight places on the workmat. I drew pictures of these in the right places and colored them."



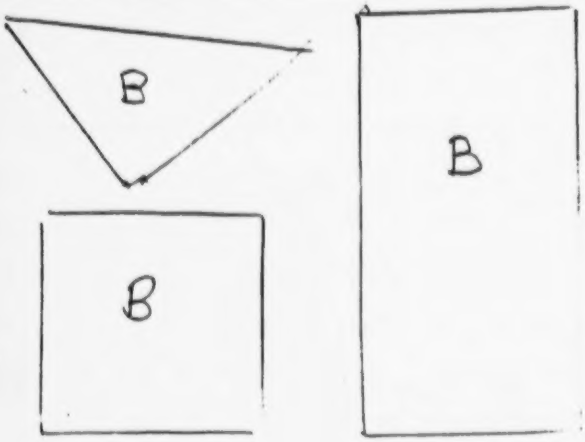
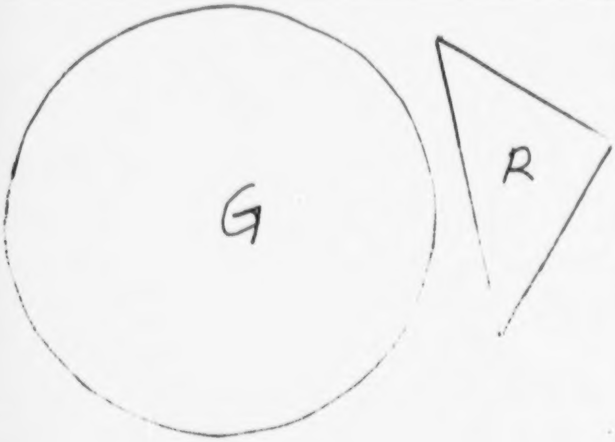
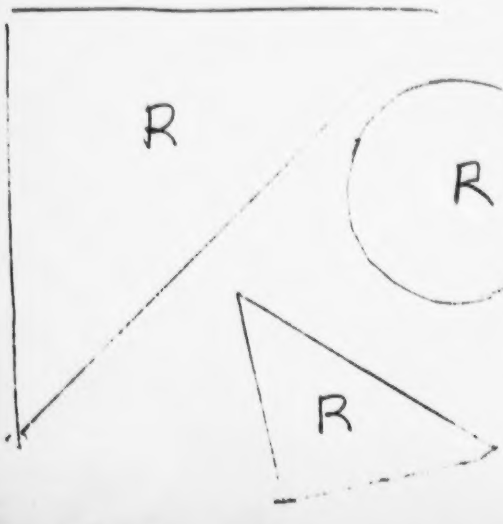
Mathematician:____

"I placed attribute pieces in the correct one of eight places on the workmat. I drew pictures of these in the right places and colored them."


BEWARE
RED
SMALL
NOT

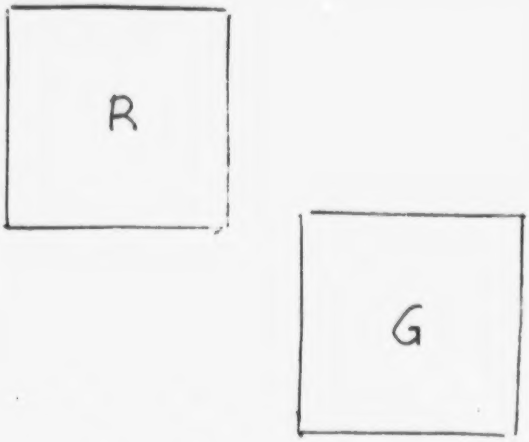
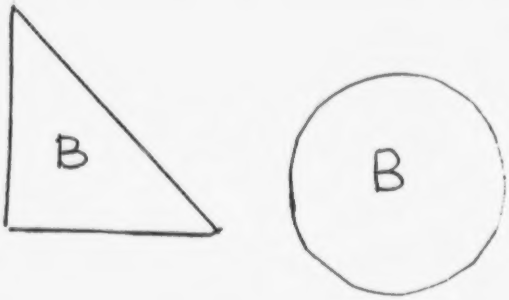
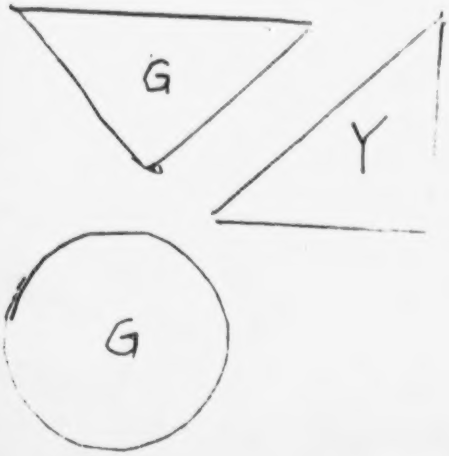
Mathematician:____

"For the TRUE statement given for the collection, I found a piece that would make the statement false. I drew that piece and colored it."

PIECES USED	GIVEN TRUE STATEMENT	PIECE TO MAKE IT FALSE
	If B, then Small	
	if ○, then Large	
	If Large, then R	

Mathematician:____

"For the TRUE statement given for the collection, I found a piece that would make the statement false. I drew that piece and colored it."

PIECES USED	GIVEN TRUE STATEMENT	PIECE TO MAKE IT FALSE
	If R, then □	
	If △, then B	
	If Y, then △	

Mathematician:____

"I chose a set of FOUR attribute pieces and wrote all statements true of this set. I drew the shapes I chose and colored them."

COLLECTION SELECTED	TRUE STATEMENTS

Mathematician:____

"I showed the equality between adding two arrays and a single array in these exercises."

Given array	**Two arrays**	**Number Sentence**
Example: **5 x 8 = 40**	**5 (7 + 1)** **5 (6 + 2)** **5 (5 + 3)** **5 (4 + 4)**	**5 (7+1)=5x7+5x1=35+5=40**
9 x 5 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
6 x 10 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
3 x 7 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
6 x 5 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
8 x 4 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5

Mathematician:____

"I showed the equality between adding two arrays and a single array in these exercises."

Given array	**Two arrays**	**Number Sentence**
Example: **5 x 8 = 40**	**5 (7 + 1)** **5 (6 + 2)** **5 (5 + 3)** **5 (4 + 4)**	**5 (7+1)=5x7+5x1=35+5=40**
6 x 7 =	1. 6(5+2) 2. 3. 4. 5.	1. 2. 3. 4. 5.
3x5 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
7 x 6 =	1. 7(5+1) 2. 3. 4. 5.	1. 2. 3. 4. 5.
4 x 9 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
2x5 =	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.

Mathematician:____

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 2 : 1
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician:____

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 3 : 4
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician:____

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 2 : 3
EXAMPLE 1	2	3	
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician:________________________________

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 4 : 3
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician: ______________________________

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 5 : 2
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician:____

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 3 : 2
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician: ______________________________

"I made links of 2 different colors of unifx cubes in the RATIO given to complete this form."

Number of unifix links	A Color	B Color	A : B 3 : 1
1			
2			
3			
4			
5			
6			
7			
8 9			
10			

Mathematician:____

"I used unifix cubes to make the RATIO links to be able to complete these statements. I identified the ratio family for each.

RATIO SENTENCE	RATIO FAMILY
Example - 2 : $\boxed{4}$ :: 4 : 8	1 : 2
3 : ☐ :: 4 : 8	
2 : 5 :: ☐ : 10	
1 : 2 :: 3 : ☐	
2 : 4 :: ☐ : 6	
☐ : 4 :: 6 : 8	
2 : ☐ :: 5 : 10	
4 : 6 :: 6 : ☐	
1 : 5 :: 3 : ☐	

Mathematician:____________________________________

"I used cuisenaire rods to complete the following chart."

RODS COMPARED	WHITES COMPARED	FAMILY
R : G		
	3 : 4	
P : O		
R : N		
	2 : 9	
G : O		
Y : E		
	4 : 7	
P : E		

Mathematician:____

"I used cuisenaire rods to complete the following chart."

RODS COMPARED	WHITES COMPARED	FAMILY
EXAMPLE: [illegible]	[illegible]	2 : 3
P : L		
	2 : 4	
P : E		
P : Y		
	3 : 2	
G : N		
R : K		
R : O		

Mathematician:____

"I used cuisenaire rods to find the right number to put in the box in the ratio sentence."

RATIO SENTENCE	RATIO FAMILY
EXAMPLE $2:3 = 4:\boxed{6}$	2:3
$4:5 = \square:10$	
$\square:5 = 6:10$	
$3:\square = 6:8$	
$4:2 = 2:\square$	
$6:5 = 12:\square$	
$3:3 = 2:\square$	
$\square:3 = 6:9$	
$5:\square = 10:4$	

Mathematician:____

"I wrote the number shown by each split board."

NUMBER SHOWN	SYMBOL	NUMBER SHOWN	SYMBOL

Positive	Negative
● ● ● ● ● ● ● ●	○ ○ ○

Positive	Negative
● ● ●	○ ○ ○

Positive	Negative
● ● ● ●	○ ○ ○ ○ ○ ○ ○

Positive	Negative
● ● ● ●	○ ○ ○ ○ ○

Positive	Negative
● ●	○ ○ ○ ○ ○

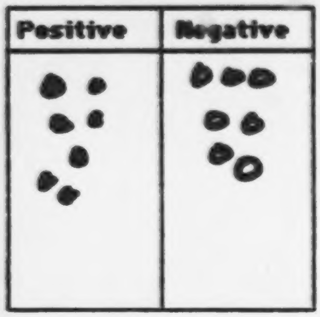
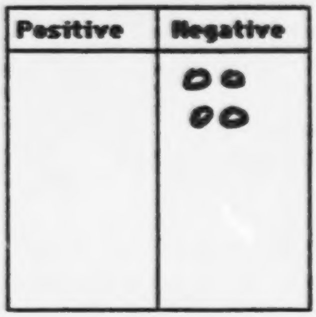
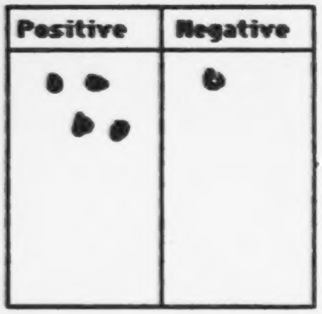
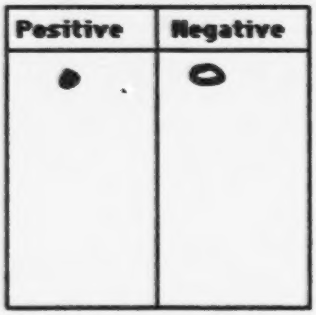
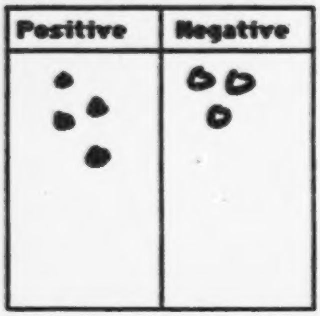
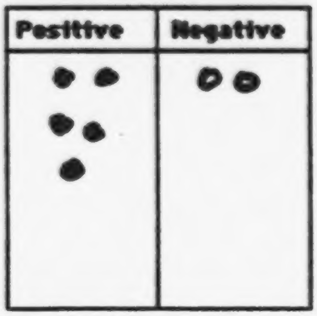
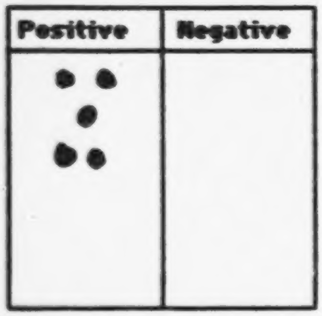
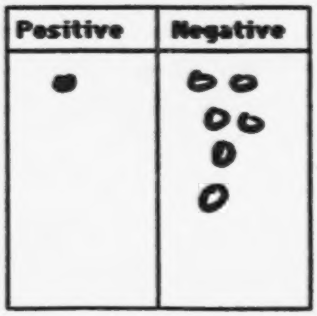
Positive	Negative
●	○ ○

Positive	Negative
● ● ● ● ●	○ ○ ○ ○ ○ ○ ○ ○

Positive	Negative
● ● ● ● ● ●	○ ○

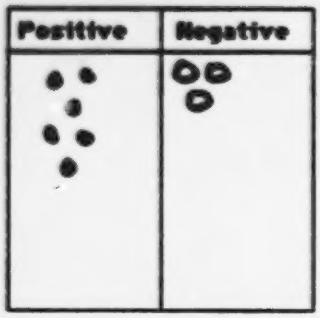
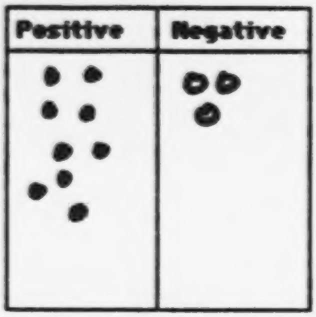
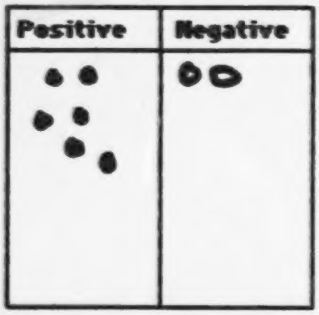
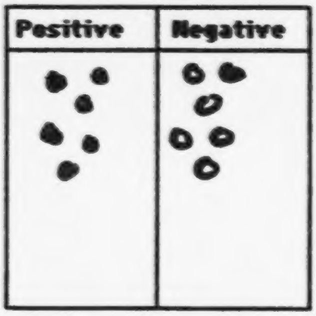
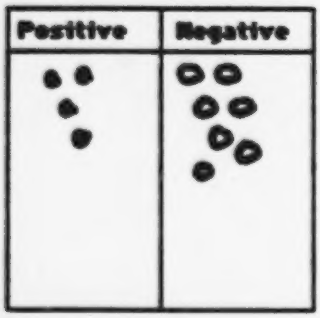
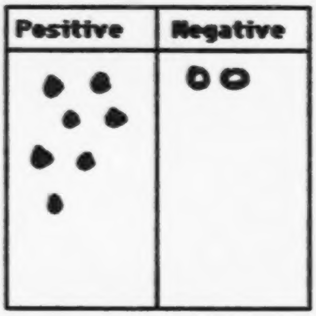
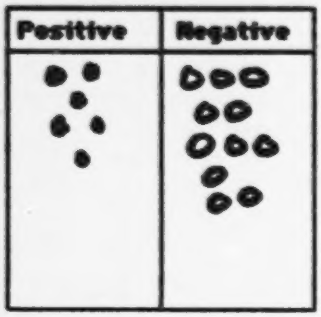
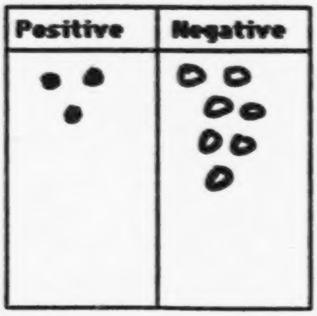
Mathematician: ______________________________

"I wrote the number shown by each split board."

NUMBER SHOWN	SYMBOL	NUMBER SHOWN	SYMBOL
			
			
			
			

Mathematician:____

"I wrote the number shown by each split board."

NUMBER SHOWN	SYMBOL	NUMBER SHOWN	SYMBOL
 Positive Negative		 Positive Negative	
 Positive Negative		 Positive Negative	
 Positive Negative		 Positive Negative	
 Positive Negative		 Positive Negative	

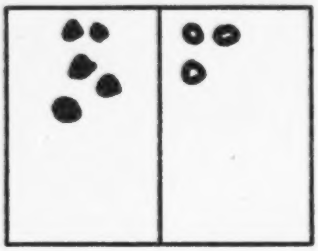
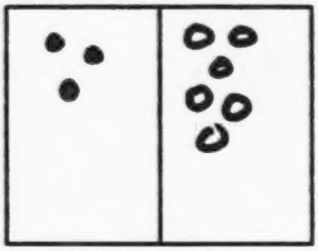
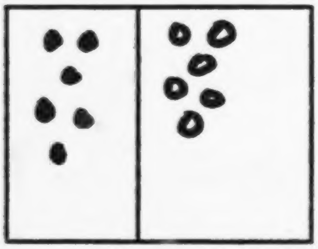
Mathematician:____

"For the TRUE statement given for the collection, I found a piece that would make the statement false. I drew that piece and colored it."

PIECES USED	GIVEN TRUE STATEMENT	PIECE TO MAKE IT FALSE

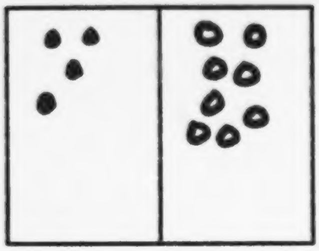
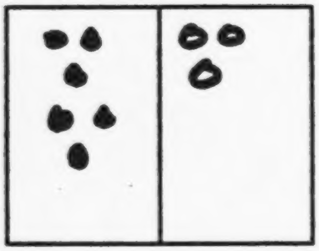
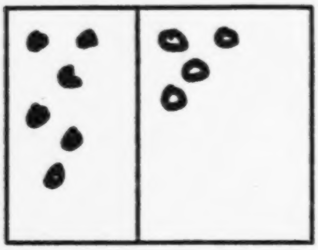
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	+2		
	+2		
	-2		

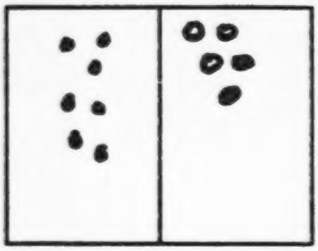
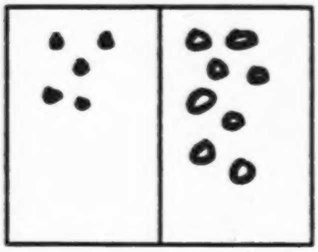
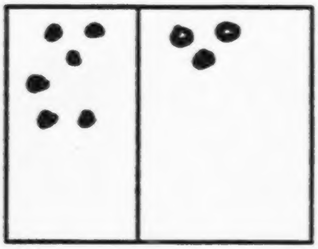
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	-2		
	-2		
	+3		

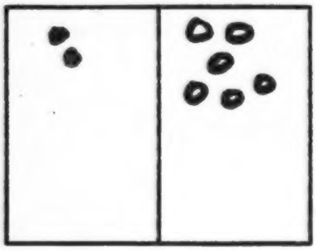
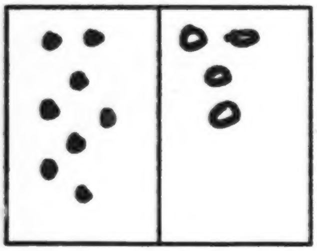
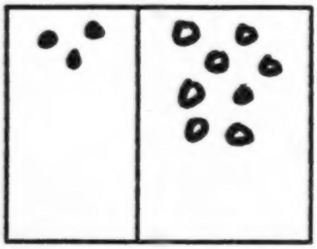
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	-3		
	-3		
	+4		

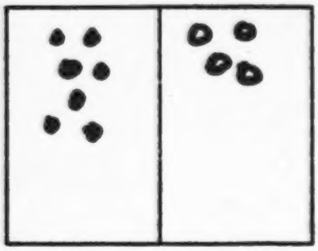
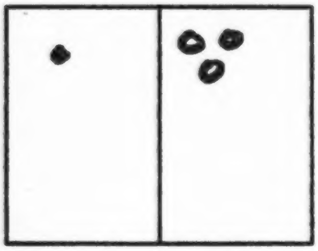
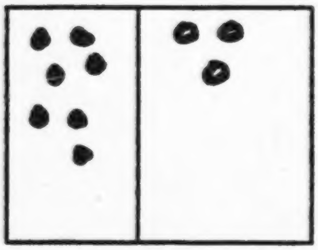
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	+4		
	-4		
	-4		

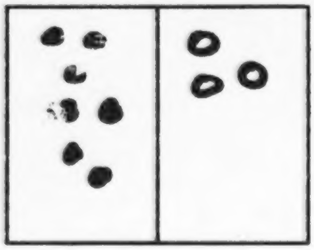
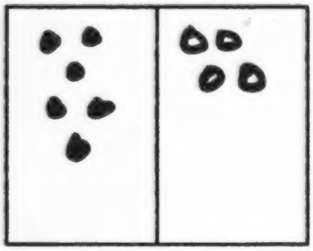
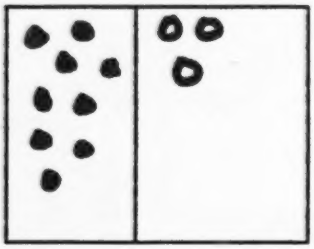
Mathematician:______________________________________

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	+5		
	+5		
	−5		

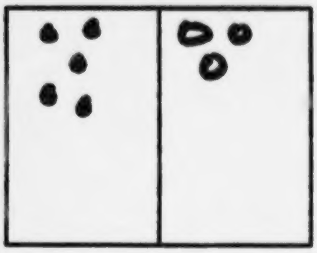
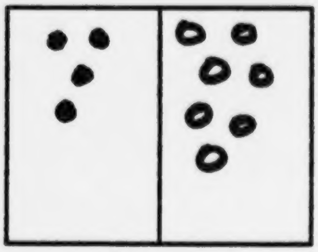
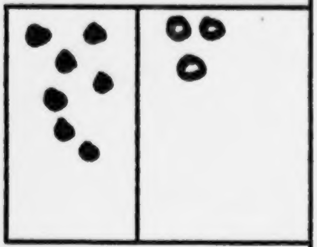
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Added	New number (1)	New Number (2)
	-5		
	+6		
	-6		

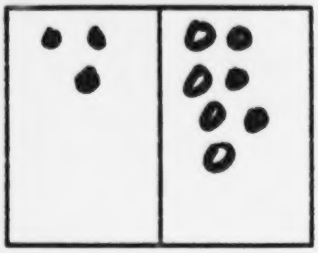
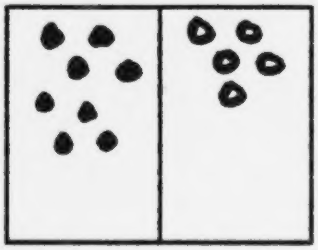
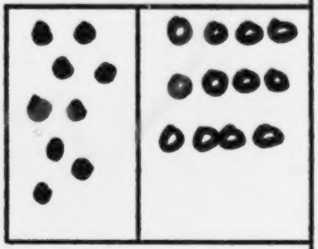
Mathematician:____

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Subtracted	New number (1)	New Number (2)
	+2		
	+2		
	-2		

Mathematician:________________________________

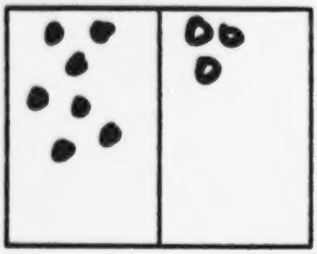
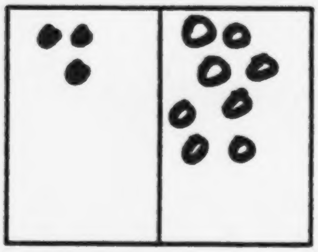
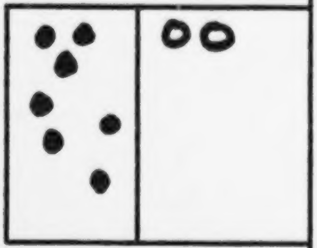
"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Subtracted	New number (1)	New Number (2)
	-2		
	+3		
	+3		

98013

Mathematician:____

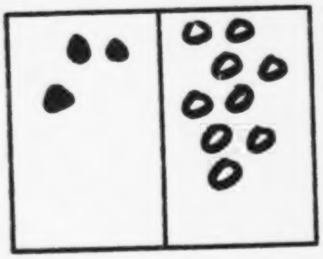
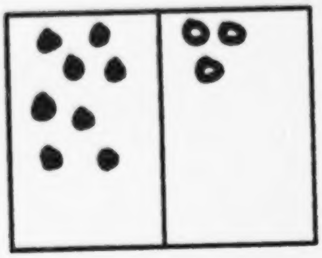
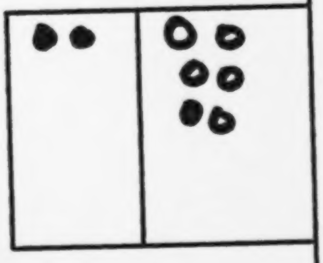
"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	Number Subtracted	New number (1)	New Number (2)
	-3		
	-3		
	+4		

90013

Mathematician:____

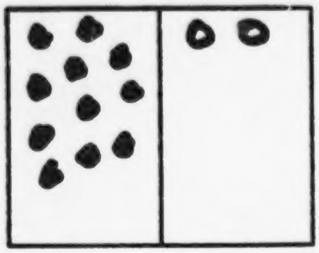
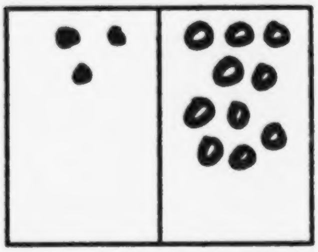
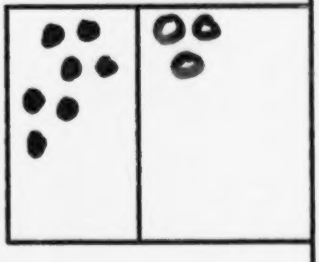
"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

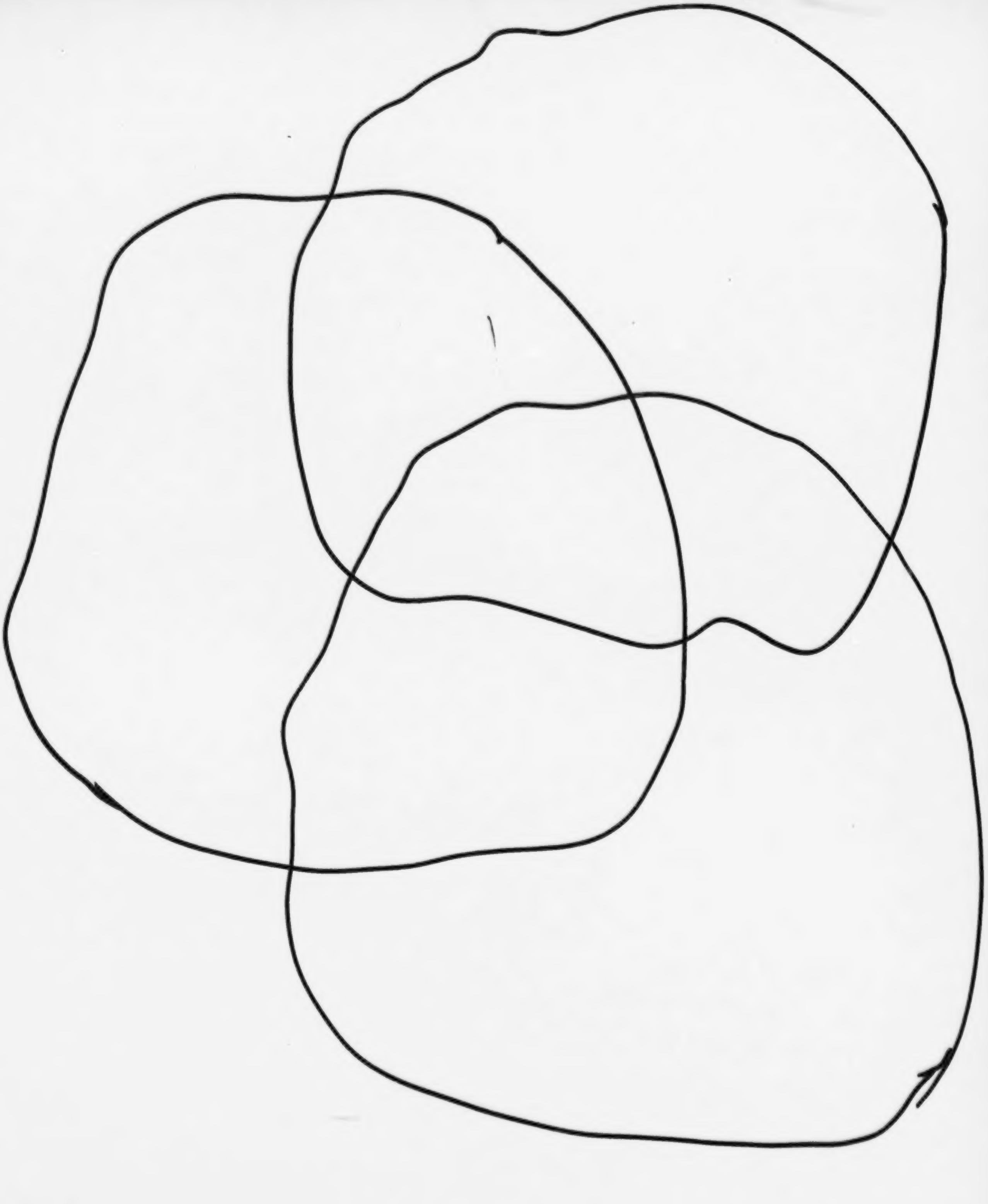
Number Given	Number Subtracted	New number (1)	New Number (2)
	+4		
	-4		
	-4		

98813

Mathematician:________________________________

"For each split board, I changed the number given to the new number asked for by adding or subtracting chips. I did this in TWO different ways."

Number Given	**Number Subtracted**	**New number (1)**	**New Number (2)**
	+5		
	+5		
	-5		



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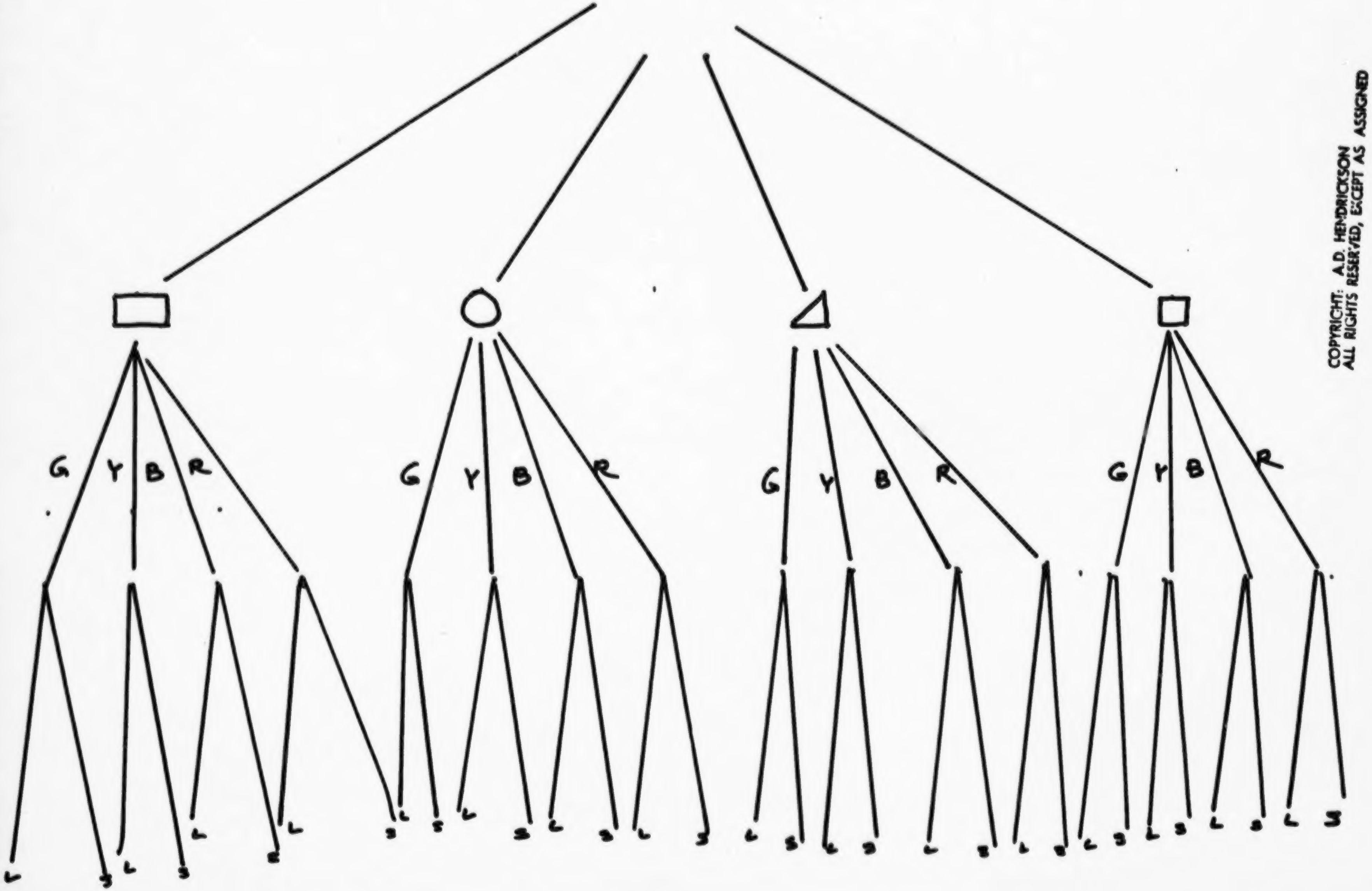
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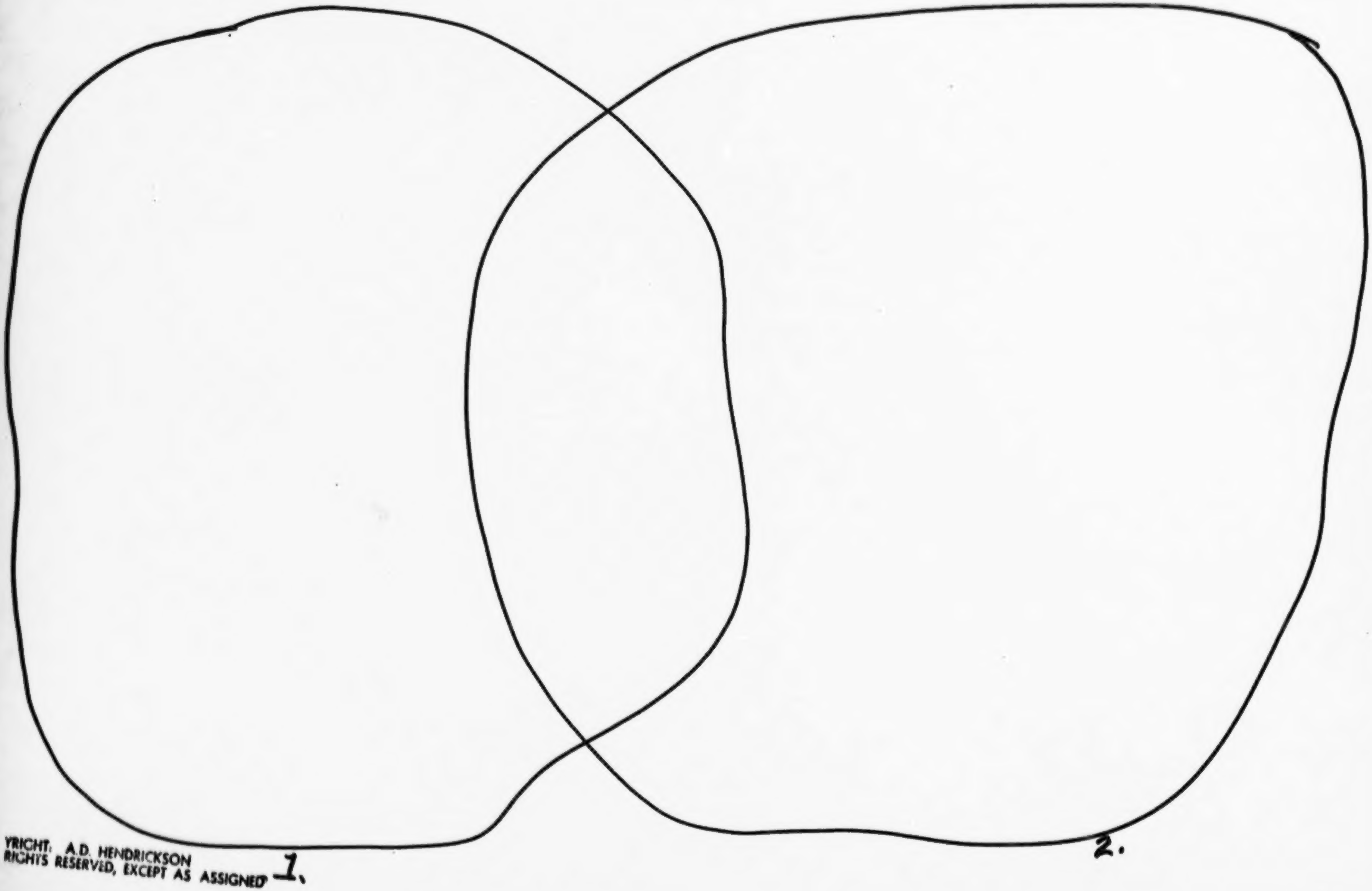

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